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FINAL REPORT

# PSRO AMBULATORY CARE QUALITY ASSURANCE REVIEW

## VOLUME I. PROGRAM OVERVIEW AND DISCUSSION

## NUMBER 3. MULTNOMAH FOUNDATION FOR MEDICAL CARE

BY

HEALTH CARE MANAGEMENT SYSTEMS, INC.

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# ACKNOWLEDGMENTS

This report would not be possible without the dedication and cooperation of the many individuals working in the five PSRO demonstration projects. The descriptions and findings contained in the report are based in the experience of the five PSROs working in the complex and challenging environment of ambulatory care to establish feasible methods for PSRO ambulatory care review. Individual project participants in each of the PSROs are listed in the appropriate sections of Volume I.

HSQB personnel active in original project formulation and direction throughout the demonstration were: Michael J. Goran, M.D.; Leslie G. Ford, M.D.; P. Gregory Banks; Penni St. Hilaire; Dennis Siebert; and the current director, Helen L. Smits, M.D.

The HCMS technical advisory board contributed substantially to this project by offering their expert consultation and advice, not only to HCMS but to individual projects and HSQB. The advisory board consists of Robert H. Brook, M.D.; Ruth Covell, M.D.; Paul J. Sanazaro, M.D.; and H. Richard Nesson, M.D.

The report itself represents the results of the combined efforts of all HCMS staff members engaged in the demonstration project. Merle A. Ryland, M.S., project director, directed the work going into the preparation of the report and contributed major sections of the manuscript. He also was responsible for project liaison, technical assistance and was the strong coordinating force in the project. Nicole H. White, Ph.D., director of special projects, was responsible for early efforts to establish a conceptual framework for project assistance and analysis and

also provided active direction during the early stages of the project. She again took an active role in organizing and preparing major areas of the manuscript during the preparation of the final report. Charles Foreman, M.S., senior data analyst, was responsible for the time consuming and difficult task of compiling, organizing and presenting data included in all reports. His analytical skills and consistent attention to data quality have added greatly to the utility of this report. Melinda Alpaugh, M.P.H., Research Associate, played a major role in the project during the second year and contributed a substantial portion of the manuscript. Other HCMS professional staff contributed substantially throughout the project. Staff members include: Edward Carels, Ph.D., Research Director, Kwai Fong Chui, Ph.C., Research Associate, Leonard Hurst, Senior System Analyst and Consultant, Alan Kubrin, M.A., M.P.P., Research Associate, and Aquilo Lipscomb, M.A., M.S., Research Associate

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PREFACE

Although the Health Standards and Quality Bureau (HSQB) had previously funded several special projects in ambulatory care quality assurance, the Bureau initiated a systematic investigation of formal ambulatory care review programs in 1975. Findings of this investigation* highlighted the need for careful examination of alternative ambulatory care review approaches to determine their feasibility, especially in the PSRO environment.

In 1976, under the guidance of Michael Goran, M.D., former Director, HSQB, a demonstration program was initiated to further examine ambulatory care review methods within Professional Standards Review Organizations.

On July 1, 1976 a letter from HSQB was sent to all the PSROs inviting them to participate in an ambulatory care review demonstration project. These letters specified that "the demonstrations will be designed to assess various approaches to ambulatory care quality assurance in a variety of health service delivery systems with substantial variety in the method of obtaining a rational PSRO coordination approach for each project." Five demonstration projects were selected to participate in the demonstration project. Representing a variety of locations and proposed methods the five projects began formal planning activities in early October 1976. The demonstration projects are Central Massachusetts PSRO, Bronx PSRO, Southcentral Pennsylvania PSRO, Multnomah Foundation for Medical Care, and New Mexico PSRO.

At the same time as the demonstration projects were being selected an analysis contractor was selected to "assist PSRO in developing the demonstration protocols and be responsible for assessment and analysis of the effectiveness of each of the demonstration projects in conjunction with the PSROs." Health Care Management Systems, Inc. (HCMS) has performed as the ambulatory demonstration analysis contractor since July, 1976. HCMS was also involved in a three-year grant program funded by The Robert Wood Johnson Foundation to examine ambulatory quality assurance programs with special emphasis on information systems. Some funding provided by the Foundation grant was used to give a private perspective to the government-funded demonstration project and to synthesize results of the project with other ambulatory care quality assurance research and evaluation programs in which HCMS was engaged.

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*Contract No. 240-75-0101, Bureau of Quality Assurance, Health Services Administration

This report on the development of ambulatory care review methods in the five PSROs demonstration projects is in partial fulfillment of the analysis contract requirements. The report includes two volumes and two appendices:

Volume I: Program Overview and Discussion
Section 1: Bronx PSRO
2: Central Massachusetts PSRO
3: Multnomah Foundation for Medical Care
4: New Mexico PSRO
5: Southcentral Pennsylvania PSRO
Volume II: Policy Recommendations and Technical Guidelines
Appendix 1: Interim Report - Cooperative Demonstration and Analysis of Ambulatory Care Quality Assurance Review Methodology in PSRO Settings - November 1977
Appendix 2: Ambulatory Medical Care Quality Assurance 1977 Conference Proceedings, La Jolla Health Science Publications, La Jolla, California 1977

Project overviews and data for each of the demonstration projects are documented in Volume I. This volume is especially useful as examples of ambulatory care review developmental efforts in PSRO. Volume II, "Policy Recommendations and Technical Guidelines" are directed to HSQB and other agencies involved in medical care quality assurance and utilization review in a regulatory environment. The appendices include the Interim Report which describes the first year demonstration project activity and findings. The second appendix is a book containing papers presented at a two-day national conference on ambulatory care quality assurance. The entire report is designed to assist organizations searching for feasible ambulatory care review alternatives.

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   [illegible]

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    [illegible]

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2. [illegible] Description [illegible]

[illegible]

[illegible] Review and Feedback [illegible]

5. [illegible] Instructional Development [illegible] 
   [illegible]

# SECTION I

# INTRODUCTION AND PURPOSE

Assessment activities conducted in each of the five Professional Standards Review Organization (PSRO) ambulatory review projects were concentrated in several areas: a) description of project administration, b) description of activities in the areas of planning and administration, topic selection, criteria development, data collection, data processing, review and decision making, feedback and intervention, and restudy, and c) description of resources expended to accomplish the project's goals.

The general objectives of this final report are to:

1. Summarize the PSRO activity by presenting a variety of descriptive documentation (Volume I).
2. Document findings of investigation of review techniques employed by each PSRO (Volume I).
3. Guide future technical assistance conducted by HSQB (Volume II).
4. Provide recommendations regarding implementation of ambulatory care review systems by current and future PSRO demonstration projects (Volume II).

Presented in this volume first is a brief program overview designed to acquaint the reader with each PSRO project. If more in-depth information is desired, either the site itself or HCMS can provide a more detailed description. The next three sections describe activities that occurred at each project and the results of these activities. Finally, the last section presents resource data for each PSRO site.

Of the five PSROs funded in the demonstration program, four are initiating ambulatory care review systems where no prior system existed. They are: Central Massachusetts PSRO, Bronx PSRO, Southcentral Pennsylvania

PSRO, and Multnomah Foundation for Medical Care. The fifth demonstration program, New Mexico PSRO, has operated a claim-based review system for several years under contract with the State Medicaid agency. The New Mexico PSRO demonstration has explored some specific review questions, most of which were research oriented.

HCMS data collection for this report has continued since the beginning of the demonstration project. Each project has cooperated in providing many different types of data including questionnaire information, counts of activities, computer run sheets, personnel hourly activity description, minutes of meetings, and written project reports. The cut-off date for data was August 31, 1978, except for resource data which was discontinued on June 30, 1978. Therefore, the most recent activities of each project are not reflected in this report. The reader should be aware that this report does not attempt to describe the entire data base of each project; the activities and data described are meant to be *representative* of the operations of each demonstration project.

# SECTION II

# PROGRAM OVERVIEW

## PROJECT PARTICIPANTS

### I Physician Participants

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Laurel Case, M.D.
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Robert B. Forman, M.D.
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Joel Shilling, M.D.
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### II Staff Participants

Scott R. Madsen, Project Director
Philip C. Walker, II, Executive Director
Alison Winslow, Field Coordinator
Tami Fkeihauf, Abstractor
Marsha Miller, Abstractor

### III Additional Staff Support

Marija Kuzman, Bookkeeping
Marlys Baver, Secretary

## PREFACE

The Multnomah Foundation for Medical Care (MFMC) was awarded a two-year contract by Health Standards and Quality Bureau (HSQB) to test a review capability which applies basic principles of hospital medical care evaluations (MCE) used by Professional Standards Review Organizations (PSRO) to small group and solo practices. MFMC has received a six-month extension to complete the project. The program was designed to test the usefulness of a physician consensus method for identifying topics and criteria for review, based on perceived problems in the PSRO area, and to examine issues concerning the most effective method for data collection in a variety of practice settings.

MFMC completed two cycles of data collection and review using sets of problem-oriented topics and associated criteria sets. The scale of the project was relatively small, although MFMC sought to examine topics which were believed to represent potential areawide problems. The first cycle of review involved 22 physicians from three specialties; the second cycle reviewed 48 physicians from five specialties.

A second part of the demonstration dealt with the development of a modified claim data base simulated claim information to determine the relative effectiveness of using different increments and types of information for screening and reviewing medical care. The objective of this part of the demonstration was to determine the minimum claim based data set necessary to identify quality related problems in ambulatory care.

Multnomah Foundation for Medical Care submitted an initial concept paper, and after HSQB modification and approval, develop preliminary and final plans over a period of five months.

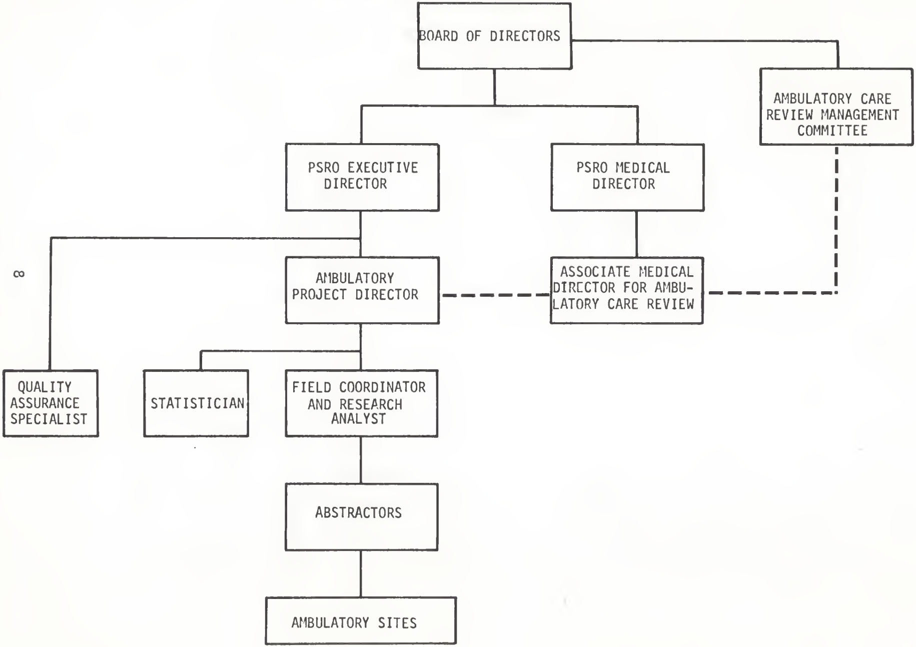
## PROJECT ADMINISTRATION

The Board of Directors of the Multnomah Foundation for Medical Care developed a general objective for the demonstration project and maintained overall responsibility for the project. The Associate Medical Director of the Foundation provided overall direction for the project through the Ambulatory Care Review Project Management Committee. The latter committee was composed of ten practitioners appointed by the MFMC Board of Directors, and had primary responsibility for the implementation of the project. Management Committee members were chosen on the basis of specialty representation, recognized leadership and experience in medical care evaluation. The activities of the committee included: identification of problem-oriented topics, development of criteria, development of the data collection methodology, selection of study participants, review, and development of the feedback methodology. The Management Committee also provided overall project guidance and made ongoing refinements in project design. All review system implementation plans were coordinated by the Associate Executive Director of MFMC. The organizational structure of the demonstration is illustrated in Figure 1.

Two other committees of MFMC provided assistance to the Management Committee. The PSRO Criteria Committee assisted in criteria development and review, and the Medical Care Evaluation Committee provided review and recommendations regarding the project progress and plans.

FIGURE 1

MULTNOMAH FOUNDATION FOR MEDICAL CARE ORGANIZATION


BOARD OF DIRECTORS
AMBULATORY CARE REVIEW MANAGEMENT COMMITTEE
PSRO EXECUTIVE DIRECTOR
PSRO MEDICAL DIRECTOR
AMBULATORY PROJECT DIRECTOR
ASSOCIATE MEDICAL DIRECTOR FOR AMBULATORY CARE REVIEW
QUALITY ASSURANCE SPECIALIST
STATISTICIAN
FIELD COORDINATOR AND RESEARCH ANALYST
ABSTRACTORS
AMBULATORY SITES

Since technical design was the primary responsibility of the Management Committee, staff support was crucial to the demonstration program. Project staff included an associate medical director who provided overall direction for the project and chaired the Management Committee, a project director who coordinated management and technical implementation of the program, a research assistant field coordinator, two PSRO abstractors and seven part time office-based abstractors. Management and staff reporting lines are illustrated in Figure 1. The project staff were also organized to utilize the expertise of MFMC staff not directly related to the demonstration project. A staff statistician was employed in a consulting capacity to compile and reduce data for review purposes.

Financial accounting was the responsibility of the Project Director and the Executive Director of MFMC. The Executive Director also provided ongoing review and assistance to project staff.

## TECHNICAL COMPONENTS

### A. Topic Selection

A key feature of the MFMC demonstration program was testing the usefulness of the physician consensus technique to identify potential problems as the basis for review topic selection. The Management Committee, using nominal group process techniques, followed four basic steps in topic selection, including:

1. Identification of possible topics for review
2. Assigning priorities to potential topics

3. Evaluation of the topics according to criteria for appropriateness
4. Consensus decision on which topics to proceed with

Use of information sources outside the Committee itself was optional for topic selection (e.g., literature, consultants, hospital data, etc.). An essential feature of the process was having the physicians identify based on their experience and observations problems in ambulatory care. The potential problems were translated into perceived problem statements to assist in focusing criteria development, data analysis, review and feedback (see Table 1: MFMC Review Topics).

Topics were chosen based on the following guidelines:

1. Perceived deficit in quality of care
2. Frequent occurrence in office practice
3. Outcome of care significantly affected by one or more interventions
4. General agreement among clinicians on the importance of intervention
5. Accessible data

The first cycle of review included six topics. Data collection for the six medical care evaluation studies was conducted simultaneously in eight practice settings. The 22 physician participants in the first round of review included internists, family practitioners and pediatricians.

During the second cycle ten new topics plus four of the topics from the first review cycle were reviewed. The same three specialties were reviewed with the addition of psychiatrists and obstetrics and gynecology. HCMS developed Figure 2: Data Flow, in order to illustrate the process of selecting topics, physicians and review cases.

TABLE 1. MFMC REVIEW TOPICS

First Cycle

| | TOPIC | PERCEIVED PROBLEM |
|---|---|---|
| 1. | Management of hypertension* | Under-treatment for essential hypertension |
| 2. | Management of hyperactivity and learning disabilities* | Overuse of drugs for behavior control without adequate workup and follow up |
| 3. | Management of pediatric gastroenteritis | Inappropriate use of contraindicated medications |
| 4. | Completion of gonorrhea culture when indicated | Failure to rule out gonorrhea when diagnoses are made that are associated with gonorrhea |
| 5. | Completion of pelvic exam with physical exam* | Failure to complete a pelvic and rectal exam and pap smear as part of a general physical exam |
| 6. | Management of well child exam* | Differences in immunizations and exams between family practitioners and pediatricians |

Second Cycle

| | TOPIC | PERCEIVED PROBLEM |
|---|---|---|
| 1. | Reactive functional hypoglycemia | Inappropriate diagnosis |
| 2. | Diabetes mellitus (insulin dependent) | Inappropriate therapy -- including patient education |
| 3. | Iron deficiency anemia | Therapy with iron alone or in combination without minimal study |
| 4. | Chemistry screen results | Inadequate follow up for abnormal chemistry screen results |
| 5. | Use of coumadin | Anticoagulant therapy (coumadin) without knowledge of coagulability of the patient's blood, i.e., treatment without monitoring prothrombin time |
| 6. | Lithium and treatment of bipolar depression and mania | Treatment without management of blood levels |
| 7. | Psychiatric consultations | Question of referral source not answered by the consultant |

*Reviewed also during the second review cycle.

TABLE 1 (CONT'D)

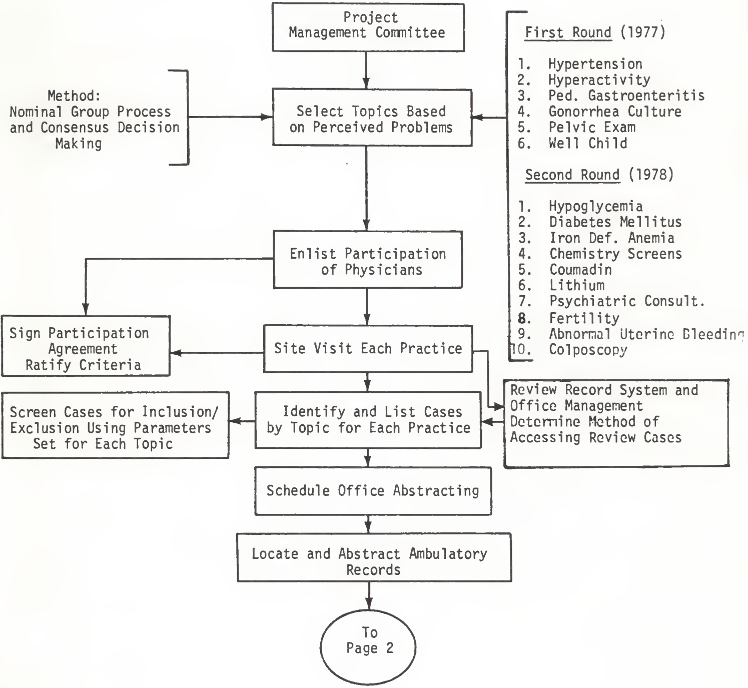
Second Cycle

| | TOPIC | PERCEIVED PROBLEM |
|---|---|---|
| 8. | Abnormal uterine bleeding | Failure to diagnose and treat abnormal uterine bleeding |
| 9. | Fertility | Inappropriate use of Laparoscopy |
| 10. | Colposcopy | Use of Colposcopy |

FIGURE 2

DATA FLOW IN CASE SELECTION

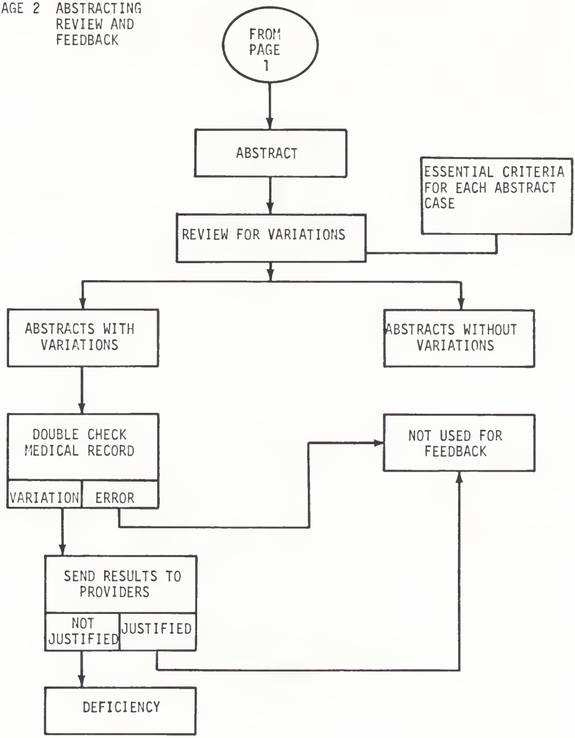
MULTNOMAH FOUNDATION FOR MEDICAL CARE



Project Management Committee
Method: Nominal Group Process and Consensus Decision Making
Select Topics Based on Perceived Problems
First Round (1977)
1. Hypertension
2. Hyperactivity
3. Ped. Gastroenteritis
4. Gonorrhea Culture
5. Pelvic Exam
6. Well Child
Second Round (1978)
1. Hypoglycemia
2. Diabetes Mellitus
3. Iron Def. Anemia
4. Chemistry Screens
5. Coumadin
6. Lithium
7. Psychiatric Consult.
8. Fertility
9. Abnormal Uterine Bleeding
10. Colposcopy
Enlist Participation of Physicians
Sign Participation Agreement Ratify Criteria
Site Visit Each Practice
Review Record System and Office Management Determine Method of Accessing Review Cases
Screen Cases for Inclusion/ Exclusion Using Parameters Set for Each Topic
Identify and List Cases by Topic for Each Practice
Schedule Office Abstracting
Locate and Abstract Ambulatory Records
To Page 2

Figure 2 Cont'd

PAGE 2 ABSTRACTING
REVIEW AND
FEEDBACK


FROM PAGE 1
ABSTRACT
ESSENTIAL CRITERIA FOR EACH ABSTRACT CASE
REVIEW FOR VARIATIONS
ABSTRACTS WITH VARIATIONS
ABSTRACTS WITHOUT VARIATIONS
DOUBLE CHECK MEDICAL RECORD
VARIATION
ERROR
NOT USED FOR FEEDBACK
SEND RESULTS TO PROVIDERS
NOT JUSTIFIED
JUSTIFIED
DEFICIENCY

## B. Criteria Development

Criteria were developed by the Management Committee, again using a committee consensus technique. Four key requirements were established for potential criteria:

1. Criteria must be "essential." (Essential criteria are defined as "those elements of care that have a direct impact on outcome*)
2. Criteria must be relevant to the perceived problem
3. Recording of the criterion in the patient record should be essential to good quality medical care
4. Criteria must be acceptable to the medical community

MFMC chose to establish and use the concept of "essential" criteria based on the need to collect and analyze only the most necessary information for determining variations. The "essential" criteria were the quality of care parameters.

During the first round of review, a member of the Project Management Committee was assigned to each topic to perform background study including review of the literature, consultation with peers and drafting of criteria. The Management Committee, using the reference sources, further developed the criteria using the format adapted from previous experience of the American Society of Internists.

Criteria lists were brief, ranging from 2 to 16 items per topic. A complex list of criteria for both study cycles in abbreviated form is found in Appendix A. Most of the criteria were framed as statements (e.g., "if no resolution in six weeks, increase dosage") and grouped in a number of general categories including: history and physical examination, diagnostic procedures, therapy, management, contraindicated therapy

*MFMC First Year Progress Report, September, 1977, p. 4.

and outcome. Synonym lists and drug lists accompanied the criteria where relevant. Each criteria set specified parameters for inclusion of cases in the study by patient age and study time frame (e.g., well child exam: patients under six years of age followed for at least three well child visits). These parameters were found in general to be too rigid in the first cycle of review, resulting in exclusion of approximately half of the cases identified. Parameters for the second cycle topics were more flexible. In the second cycle of review, criteria were developed by subcommittees of specialists. They were later ratified in writing by all participating physicians.

### C. Data Collection and Processing

During the planning process a description of the socioeconomic character of Multnomah County and the physician population was compiled by MFMC staff for reference in planning and in soliciting physician participation. Approximately 85 physicians were approached to participate in the first cycle of review, of whom 22 agreed. During the second cycle 48 physicians consented to participate. Prior to data collection each participant met in an orientation session with the PSRO staff to discuss project procedures. Preliminary site visits were carried out at each practice to sign participation agreements, review record systems and perform initial chart ratings.

A detailed format was used in assessing the management and data flow characteristics of each office during the preliminary site visits. Description of details such as medical record filing system, types of flow sheet forms, reports and logs used, types of appointment ledgers and billing processes were included in the format. An approach to case retrieval and abstracting was noted for each of the study topics to be reviewed at each site so that abstractor training could be suited to the particular conventions of each office. Samples of encounter forms used in each practice were attached to the protocol and filed at the PSRO for reference purposes. An initial chart rating was performed at the site visit using scaled ratings of the various types of documentation available in the record. A sample completed office profile is contained in Appendix B.

Some of the methods for identifying and locating ambulatory records (already derived from the office profiles for implementation in data collection) included:

1. Retrieval through an automated information or billing system
2. Review of appointment ledger and lab log
3. Selection of charts through office personnel recollection of patient problem
4. Retrieved data via bills submitted to third parties
5. Concurrent logging of the patient
6. Review by random selection of medical records

The case selection process is illustrated in Figure 2: MFMC Data Flow, page 1: Case Selection. The office profile forms also proved to be useful in abstractor training and in initiating abstracting.

Abstracting forms and instructions were developed for each topic. Instructions included such information as guidelines for charts to pull, narrative description of procedures with examples and exceptions noted, and lists of drugs, synonyms and concurrent conditions.

The data collection format incorporated the use of numerical codes, clinical values, plus or minus signs to indicate presence or absence, alphabetical codes, and longhand notes on the abstracting form.

Pilot testing of instructions and forms was conducted at the first physician's office scheduled for abstracting. Thereafter, instructions were rewritten and considerable detail was added in all areas, including clearer definitions for inclusion of cases in the study. The nurse abstractor and a nonclinically oriented abstractor completed a one-week orientation and training period. In addition to these abstractors, seven personnel at the office sites were assigned to complete data collection at six sites and were given a brief orientation and training session.

As the data collection progressed, abstractor training was expanded to include medical terminology, training in medical records format, coding systems, use and interpretation of synonymous data, and recognition of recording errors.

Abstractor reliability was formally tested during the first review cycle using three levels of personnel. The mean percent of accuracy was 82% for physicians, 83% for review coordinators and 87% for staff abstractors.* As a standard quality control measure, 20% of all charts were reabstracted in the first cycle of review. In the second cycle, each chart containing a variation were reviewed for accuracy by the field coordinator.

*MFMC First Year Progress Report, Attachment T: Abstractor Reliability and Accuracy, September, 1977, p. 10.

A sample of MFMC abstracts were examined (5% of the total abstracts) for 11 topics. Frequency counts of data items found in the sample revealed varying degrees of data availability for certain categories of data. Diagnosis and therapy categories were above average in availability, history and physical were generally near the average, management and outcome categories showed low availability and no data was found in the sample for the contraindicated therapy category. These findings are described in more detail later in this report.

## D. Review, Decision Making and Feedback

Review involved manual scoring of the abstract and summarization of the results. Scoring consisted of a comparison of the abstract data to the criteria and a determination of compliance or noncompliance for each criteria item. No attempt was made to weight the results. The Management Committee reviewed initial scoring, revised and clarified the reporting format and stipulated that four charts per physician be the minimum number abstracted for review.

Variations in the abstract were identified by the abstractor who then reabstracted the chart and wrote comments interpreting the variations. The variation results were referred to the Management Committee for review and determination of feedback requirements. The process of variation identification, review, and provider feedback is illustrated in Figure 2: MFMC Data Flow, page 2: Abstracting Review and Feedback.

MFMC staff prepared for analysis a display of variation data by topic and physician for the second cycle of review. A chart was labeled as a "variation" if there was noncompliance for one or more criteria. These data are presented later in this report.

## E. Intervention

MFMC used a feedback strategy which consisted of providing results (variations) to practices, then discussing the variations in an effort to identify potential justifications. Representative records with problems were reviewed with the practice physicians. No comparative or aggregate data were presented. Problems were generally found to be due either to documentation problems or abstracting errors, or were due to objections to the criteria, in which case they were termed "acceptable variations." When the physician was not accessible or refused to take part in the feedback meeting, feedback letters were sent. A sample set of variations for various topics is found in Appendix C.

When all study results are compiled, MFMC plans to send displays of comparative data to physician participants, showing performance of peers in the community relative to the physician's own performance.

MFMC plans to restudy all physicians with practice variations. Restudy will consist of abstracting and reviewing a maximum of 20 cases per physician. Logging of new cases is now under way in most of the practices.

# SECTION III

# ANALYSIS OF DESIGN AND PLANNING

## INTRODUCTION

In an effort to identify the requirements essential for developing a Professional Standards Review Organization (PSRO) ambulatory care quality assurance capability, Health Care Management Systems, Inc. (HCMS) developed and administered two questionnaires to PSRO ambulatory care review system personnel participating in the demonstration program. The information gained from the questionnaires is intended for use by federal officials and PSRO leadership in highlighting design, planning and operation activities that must be accomplished in establishing the foundation for a successful ambulatory review program.

### The First Year Questionnaire: Planning

The questionnaire covered four major planning areas: 1) development of the basic conceptual design of the review system, 2) project management (e.g., formation and responsibilities of the project management committee and project staffing requirements), 3) demonstration project relationships with other PSRO organizational units (the PSRO Board and standing committees), and 4) relationships with groups and organizations external to the PSRO (PSRO members and providers associated with the demonstration project as volunteer participants, consultants, and the analysis contractor). The methods used to construct, administer, and analyze the questionnaire are reported on pages 8-12 of Appendix 1, "Interim Report Cooperative Demonstration and Analysis of Ambulatory Care Quality Assurance Review Methodology in PSRO Settings." Data was analyzed across all PSRO projects and findings reported below reflect the opinion of aggregated demonstrated project participants.

## The Second Year Questionnaire: Design and Operations

The second questionnaire focused more specifically on the actual success of each site's project design and resultant operation. A substantial number of items were aimed at management and administration issues. Other items questioned resources and funding and methods for topic selection, criteria development, data collection and processing, review and decision making, and intervention. The questionnaire was divided into two sections. Whereas the first year questionnaire was analyzed across all PSRO projects, the second year questionnaire was analyzed both by individual project (Section I) and across projects (Section II). The findings from Section I are reported below; the findings from Section II are found in Volume II of this report.

## SYNOPSIS OF FIRST YEAR FINDINGS

Twenty requisites and five additional elements for a planning process were extracted from interviews with 25 ambulatory care quality review system planners participating in five demonstration projects. Overall, 20 requisites (numbered) for planning were identified and five elements (E) came very close to meeting requisite criteria.

1. Involve the PSRO Board in the review of progress reports concerning ambulatory care quality assurance system activities.

E1. Prior approval of ambulatory care quality assurance objectives by the PSRO Board is essential to avoid committing resources to activities that are later abandoned.

Two respondents said that PSRO Board approval for their demonstration projects was obtained on the basis of little information on Board members' part. Since original approval of the project, according to ten respondents, the Board has not been active in project activities other than receiving reports, primarily at Board meetings. Health Standards and Quality Bureau (HSQB) required Board approval of PSRO participation in the demonstration program. The one PSRO which did not continue to participate in the program did not obtain prior Board approval. Two respondents from this project emphasized the need for Board agreement and approval of project objectives before the initiation of activities in order to avoid wasting resources.

2. Assure that all participants in review system design and operation (PSRO staff, PSRO consultants, the funding agency and the analysis contractor) have a complete and common understanding of PSRO ambulatory care quality assurance system goals, objectives and philosophy.

Eight respondents emphasized the need for all review system planners (PSRO professionals, staff and consultants to the PSRO) to have an early understanding of the goals. They felt this might keep activities peripheral to the goals from draining resources at a later date. One respondent emphasized the need to put the goals in written form to serve as an unambiguous reminder to all throughout the review system planning phase. Another thought that a common understanding was particularly important when the personnel from more than one organization are involved in project design and planning. Respondents also emphasized the need for a common understanding between project participants, the funding agency and the analysis contractor.

3. Attract a core individual or individuals to the review system to assure the continuing momentum of review system design.

Five respondents mentioned the necessity of involving a person or persons with both a well-formulated review system core idea and the time and dedication to devote to nursing that concept through the stages of review system planning. Such a dedicated leadership is required to provide continuity and assure continuing momentum, and particularly to refine the conceptual base of the review system as project planning progresses. These critical persons are required for assembling staff resources and for interaction with the various physician groups during the review system planning phase. One of the respondents said that as planning progresses and project staff other than core individuals begin to understand the details of the review system concept, the dependence of project planning on this core declines.

4. Attract to the review system planning team a medical leader whose opinion is valued by community physicians.

Four respondents emphasized that the involvement of a medical leader whose opinion is respected by community physicians and by all project planners was important to the planning phase. The medical leader's importance lies in his ability to coordinate the sometimes diverging perspectives of the various project planners. One person who speaks with authority is required to resolve potential conflicts and demonstrate to planners the wisdom of certain resolutions.

5. Define consultant role and tasks as specifically as possible to maximize consultant usefulness to review system planning.

Six respondents felt that consultants outside the PSRO could offer significant assistance to ambulatory care review system planners. Two respondents emphasized the need for the PSRO to specifically define the consultant's tasks and expectations early in the PSRO-consultant relationship.

Three review system planners provided suggestions on how to enhance the usefulness of the analysis contractor in his role as technical consultant during the planning process. While these respondents felt that the analysis contractor was quite helpful in identifying areas of the project that required clarification, they thought that the contractor should have taken a more active role in helping the planners to resolve these issues. While these particular respondents did not specifically so mention, two others mentioned the need to clarify, at an early date, the role to be assumed by the analysis contractor, especially in the area of technical consultation.

6. Designate one review system planning team member to coordinate and rewrite planning documents, integrating sections produced by various other system designers.

7. Include on the review system planning staff one person at the full-time or nearly full-time level responsible for coordinating the technical activities for daily review system planning.

E2 It is useful to include on the review system planning team a person with skills in system design and knowledgeable in the daily operation of review system activities.

Six respondents saw the need to include a full-time or nearly full-time PSRO staff member to coordinate planning and manage eht operation of the review system; also, as one respondent mentioned, this full-time staff member is needed to attend to the time-consuming tasks and the myriad of details that arise in such an enterprise. Three respondents emphasized the importance of this person having skills in system design and management of day-to-day activities.

8. Emphasize to review system planners that planning activities are evolutionary and that they can expect testing and revision to continue beyond the initial drafting of a system design.

Seven planners mentioned the difficulty of producing planning documents that anticipated the future details of their proposed ambulatory care review systems. Five respondents mentioned that planning activities would continue beyond the planning phase and into the operational phase. They emphasized that it is impossible during the planning phase to anticipate all the contingencies that might develop in the operation of the review system. One respondent said that concept development is evolutionary, requiring modification as difficulties arise. Others said that alternative solutions to problems that are anticipated during planning can often only be investigated in an operational environment. Two respondents mentioned that while the general review system design and initial steps can be finalized during planning, the details must await operational activities. One respondent thought review system design might entail a trial-and-error process for certain problems.

9. Implement selected feasibility tests of the review system components to enhance planning prior to committing resources to larger-scale operational activities.

Nine respondents said that a feasibility test of some of the uncertainties, utilizing fewer records than the operational review system would later involve, would have been helpful. Commonly suggested review system components for feasibility tests were: 1) the abstract form, and 2) a determination of what data were likely to be found in the ambulatory record and might thus be included for quality review. Four of the nine respondents thought that a limited pilot study of the entire review system would have been helpful, although several viewed the demonstration project itself as a pilot study. The other five respondents felt that since a limited amount of time was provided for the demonstration project, a pilot study of the entire review system was not possible; that the preparation required for such a test was as extensive as was required for operating the actual demonstration review system and was, therefore, not an efficient use of project resources.

10. Make review system staff aware of the purpose and demands of planning in order that these demands do not dampen their enthusiasm.

E3. Specific deadlines for review system planning and planning documents tend to expedite those activities within busy PSROs.

Two respondents commented on a related issue, the effect that extended planning periods had on project staff. These respondents felt that staff enthusiasm for the demonstration project was jeopardized at times by an inability to investigate, in an operational setting, what everyone perceived were uncertainties concerning project design. One of these respondents as well as a third thought that project interaction with outside monitoring (HSQB and the analysis contractor) should be more intensive over a shorter period of time in order to produce an improved planning process and allow earlier testing of the review system design.

Responses varied concerning the amount of time allotted to writing planning documents. Four respondents felt that a sufficient amount of time was available for the production of the concept paper, the preliminary and the final plans. Six felt that they could have used more time. Three respondents mentioned the difficult and time-consuming tasks of integrating the concerns of everyone participating in project planning (staff, consultants, HSQB and the analysis contractor) into one coherent planning document. Three of those who felt that sufficient time was available for writing documents (planners who were not directly involved in the writing) thought that if more time had been allotted, the document writing would have consumed that time without producing plans of a higher quality or containing any more detail; these respondents felt that deadlines served the function of expediting organizational activities.

11. Include on a review system management committee representatives of those physicians whose ambulatory care will be reviewed.

E4 Inclusion of key physicians skeptical of ambulatory care quality assurance in management activities can help assure that their skepticism does not become opposition.

Each of the five PSROs participating in the demonstration project formed a management committee to oversee the planning and operation of their review systems. Five respondents mentioned the importance of including on that committee representatives of the physicians whose medical care would be reviewed so that a liaison could be established between the review system and the individual physicians. The liaison, a physician, would convey the concerns of his constituents to the PSRO, guaranteeing communication between the physician community and the ambulatory review system managers. Representatives from hospital staffs, according to the five respondents, can serve as the liaison between the PSRO and community physicians since most physicians are associated with a hospital. Two respondents mentioned that their review system management committee included a physician who had a skeptical attitude toward the review of ambulatory care and who was recruited for the committee to assure that his skepticism did not become opposition.

12. Indicate to planners that they should expect that PSRO members will express little desire to become involved in review system planning activities.

Seven review system planners said that although the PSRO general membership was notified, it expressed little desire to participate in planning activities. Several respondents were surprised that the physician community did not express more negative reactions concerning ambulatory review. Only one respondent stated that a "couple" of PSRO physicians responded by volunteering for project committees. Another respondent elicited little reaction from physicians even after his personal explanations of the project. Five respondents explained that notification usually occurred through the PSRO newsletter, although in two projects the PSRO annual meeting was also used to inform the membership. In either case only a general project description was provided.

E5 Inclusions of the PSRO membership in the design and operation of the ambulatory care quality assurance system should await its testing in order not to arouse premature opposition.

Nine respondents felt that it was premature at this time to involve the PSRO general membership in the details of the design and operation of the ambulatory care review system. These planners felt that the membership should not be involved until review was perfected and a well-developed and tested system could be presented to them. Two of these planners specifically mentioned the danger of arousing opposition to ambulatory review, opposition that would "muddy the waters" for the future and defeat ambulatory review before it had a chance to develop.

Sentiment on this point was not unanimous. One respondent felt that the benefits to be gained by increased membership interest in the PSRO and the ambulatory project were worth risking the potential opposition that might occur through such involvement. Another felt that should disharmony develop, project planning should include the "loyal opposition." Another respondent from the same project felt that as many physician groups as possible should participate in order to legitimize the project within the medical community.

13. Recruit from the review system and employ as representatives to the physician community those physicians with strong personal ties to the groups of physicians whose ambulatory care will be reviewed.

14. Identify local medical community opinion molders and enlist them as personal ambassadors from the PSRO.

Thirteen respondents emphasized that a critical factor in gaining physician participation in the demonstration project was a personal relationship between a physician representing the review system and the physicians whose ambulatory care was to be reviewed. In all the projects this personal relationship was one that had developed prior to the demonstration project. It was employed in obtaining physician volunteers for the project through letters, telephone calls and actual personal contracts. In the two projects associated with hospitals representatives of medical staffs were used to encourage physician participation in the demonstration project. Members of committees in one project were selected in large measure on the basis of their potential ability to gain the cooperation of physician volunteers. One respondent said that had physicians been asked anonymously to volunteer to have their ambulatory care reviewed they would have refused. The "peer pressure" implied by personal contact with a PSRO physician representative generated the cooperation. Two other respondents mentioned that securing the cooperation of physicians in their areas required repeated personal contact with the potential volunteers.

One project, in an effort to obtain the participation of one physician in a small group practice, actually obtained the participation of all members of that group through contact with the one group member. Five respondents saw the need for PSROs to identify the opinion molders in each locality who would serve as personal ambassadors from the PSRO to the physician and generate support for ambulatory care quality assurance activities. Permission to review the ambulatory care of physicians practicing in the outpatient department of a project hospital was secured through the hospital administration, and each individual physician did not need to be recruited.

15. Emphasize to the participating physician community that the review system will provide the physician with information useful to his practice.

Five respondents felt that one of the best methods of eliciting cooperation from volunteer physicians whose care will be reviewed is to agree to provide the physicians with feedback of review results. One respondent said that volunteers feel that review may be used to gain some knowledge about their practices without any expense on their part. Another felt that it was important to provide feedback as quickly as possible. The importance of providing positive as well as negative feedback to the physician was also emphasized. Some physician volunteers, according to one respondent, made the provision of feedback a condition for their participation.

16. Emphasize to those physicians whose ambulatory care will be reviewed by the quality assurance system that their early and willing cooperation will avoid the imposition of a system from outside the local medical community.

Fourteen respondents felt that an important factor in attracting volunteers to ambulatory review activities was the desire of the physicians themselves to become involved in a physician-led effort to establish ambulatory care quality assurance systems, thus avoiding nonphysician design of systems that may possibly have antithetical consequences for them. Two respondents specifically mentioned physicians' concern with the imposition of an unworkable system by the federal government, one not attumed to local needs. Two other respondents said that the PSRO emphasized to potential volunteers the opportunity to influence, through the demonstration project, the evolving federal policy toward ambulatory care quality assurance. One of these respondents informed volunteers of previous PSRO experiences in influencing policy.

17. Prepare system planners to expect that physicians whose care is being reviewed require few details concerning the technical operation of the review system during the planning phase.

Seven respondents mentioned that the physician volunteers requested general, not detailed, information concerning the proposed review system. This information was supplied to them in both written and verbal form. Two respondents from different projects mentioned that a personal contact session of only 10 or 15 minutes was necessary to explain project objectives and procedures, and few volunteers requested additional detail. One respondent mentioned that volunteers were more concerned with the degree to which review system activities would affect them than with the system's technical details. Another respondent said that volunteers were concerned about what the review system would cost them. Volunteers were interested in what criteria would be used in evaluating their ambulatory care. A respondent from a project associated with PSRO area hospitals confirmed that the hospitals were also interested in a general, and not a detailed, description of the proposed review system.

18. Prepare system planners to expect that physician volunteers whose ambulatory care is being reviewed will express little interest in participating in the design or the technical activities of operating the review system.

Six respondents said that the physician volunteers were not interested in participating in the design or operation of the ambulatory care review system. Five of these said that none of the volunteers expressed any desire to become involved. The sixth respondent said that a few did express a desire, while other physician volunteers offered suggestions. The majority of volunteers, however, were not interested in the technical details of the review system. One respondent felt that the physicians were comfortable in delegating this responsibility to their project representative. Another felt that they simply did not have the time for such activities and that some mechanism should be created to allow them the level of involvement that their time permits.

19. Assure that review system activities do not interfere with the physician's office routine.

Five respondents mentioned that physician volunteers concerned that review system activities might interfere with office routine. One potential volunteer decided not to participate in the demonstration project because of what he saw as potential disruption to his practice. Two respondents said that this project goal was to demonstrate that effective quality assurance systems can be developed and operated without interfering with office routine.

20. Assure the confidentiality of all physician and patient information.

Nine respondents mentioned that physician volunteers were concerned that the medical record data remain confidential. They were apprehensive about the potential dangers involved in breaching patient privacy by releasing information. Another concern was whether the physician maintained legal custody of the medical information and could release it for quality review activities without risking any patient-initiated legal consequences. One respondent said that volunteers were most concerned about the identification of the physician. Another mentioned that the PSRO anticipated the problem and had assured confidentiality of all data in the initial PSRO letter inviting physicians to participate in the project. Still another stated that this potential problem was mitigated by PSRO confidentiality policies. Two physician respondents felt that the confidentiality issue was not the real issue but was being used by some as an excuse for not participating in quality assurance activities.

## SECOND YEAR FINDINGS

### Method

### Subjects and Questionnaire Development

The subjects for the survey were 87 persons who were involved in various aspects of the demonstration projects in the five sites. For analysis purposes, subjects were classified according to their role in the demonstration project (e.g., PSRO staff or physician, physician or nonphysician consultant, abstractor and other). Also, they were classified according to their level and type of involvement in the project.

The questionnaire was composed of two sections. The first section had 18 objective items where the respondent was requested to circle one of three answer choices which best described their position and then indicate the strength of their position along the continuum from strongly agree to strongly disagree. If respondents felt strongly about a question, they had the option of answering more than one choice.

The second section is comprised of a mixture of 22 open and closed questions. The bulk of these questions focus on describing the PSRO demonstration experience to provide technical assistance to new PSROs beginning ambulatory care review programs.

The questionnaire development began with staff review of over 150 articles, books, and papers on the topic of quality assurance. Each reference was read to extract relevant information on ambulatory care quality assurance. A listing of strengths and weaknesses in conducting ambulatory quality assurance was comprised. Special problems in the evaluation of ambulatory care were also noted within the literature.

HCMS' previous experience with ambulatory care quality assurance projects was then used to build a model for reviewing care rendered in the office setting. The model was comprised of three cycles: screening, action, and restudy. The components of the model consisted of such factors as selection of topics or providers, criteria development, review and decision making, and impact assessment.

From this model HCMS staff developed a list of issues being investigated within each site. These issue lists were site specific but gave a picture of the issues and problem areas facing each of the demonstration sites. From the issue lists a common thread of issues across all sites was determined. HCMS and HSQB staff discussions were also held to review the entire ambulatory care demonstration evaluation effort. Such discussions when combined with the issue lists and model tended to focus survey attention on the future of ambulatory care rather than objectively determining what each site did or didn't do and why.

From this process a list of 76 questions were developed. These questions were all open ended. In order to better quantify some of them and eliminate others, a sample of 32 questions was discussed face to face with a group of people working on the demonstration at one of the sites. HCMS staff reviewed the interpretations given to the questions as well as the responses. The interpretations and points of uncertainty displayed by PSRO personnel were then utilized by HCMS staff to revise the list of questions and convert others to objective (closed ended) questions. This process also assisted in determining relevance of questions as well.

A draft of the survey was prepared in late August, 1978. The HCMS staff critically reviewed the questions and a final draft was prepared on September 1, 1978. A letter soliciting cooperation support from Dr. Michael Goran of HSQB and a personal letter with directions for survey dissemination were mailed to each of the Executive Directors within each site. Each Executive Director was then requested to disseminate the survey together with a self-addressed stamped folder to each of the key people involved in the project. The list of people were derived after HCMS reviewed cost log voucher data from each site and confirmed each list of names with each Executive Director.

Complete packages of surveys and return envelopes were mailed to each Executive Director in the second week of September. A two-week turn around was requested in the letter which accompanied each of the surveys.

A series of follow-up calls from HCMS were required to obtain responses from each of the sites. After seven weeks, data analysis began and no more questionnaires were accepted.

The final response rate was 44 or 51%. The majority of those nonrespondents were physicians who served as consultants to the project in its beginning stages.

## Data Analysis

For each individual project, responses in Section I of the questionnaire were tallied on a three-point scale; choices 1 and 2 (agree) and 4 and 5 (disagree) were collapsed. Since several items were mutually exclusive, if a respondent had conflicting responses indicating he did not understand the item, these responses were eliminated from the data base. From a total response rate of 1,274 the usable responses totaled 1,203. For each item, the response rate for agree, undecided, and disagree is reported.

Additional analysis examined differences between physician and nonphysician responses for those items where there was at least two responses in both the agree and disagree categories. The analysis included only those individuals who were classified as either a PSRO staff physician or physician consultant and a PSRO staff nonphysician, nonphysician consultant or subcontractor consultant. Also included were only those individuals who were rated as being involved in all or at least four phases of demonstration development.

Analysis of Section II of the questionnaire included reading the open-ended responses and synthesizing meaning into appropriate categories, depending on the nature of the question. The close-ended questions in Section II were tallied with no changes in the response categories.

## Discussion of Survey Findings (Section I)

Presented in Table 2, "Survey Items and Responses: Multnomah Foundation for Medical Care" are the 18 questions along with the total responses per question. Thirteen questionnaires were sent to the PSRO and eight were returned. The total responses were 263, 14 of which were not useable, leaving total useable responses of 249.

Respondents agreed that their project was aimed primarily at research while three respondents believed that the project was a combination of both research and implementation of an operational review system (Item 1 and 2). Respondents were split of whether to rely on others research or create their own concepts which accommodate the unique characteristics of their geographic area (Item 5). The majority of respondents believe that use of voluntary physician participants is necessary even though it may bias research findings (Item 3).

In regards to the goals of the project, it was agreed that the purpose of a PSRO ambulatory care review system is to improve care rendered to all patients as well as to help contain health care costs; cost effectiveness must be emphasized if the PSRO program is to survive (Items 4 and 11). Respondents are unable to say whether it is possible to make cost-effective programs, however, they believe that both deviant physician practice patterns and the entire mainstream of care should be reviewed (Item 9). Topic selection should focus on those topics which have the greatest potential for improving the patients health, and depend on data accessibility. Respondents did not agree on whether topics are best developed by physician members or PSRO peer review committees (Item 12). Personnel agreed that review of nonphysician services will become necessary in the future, however, are not sure whether that is feasible immediately (Item 14). Respondents are split on whether criteria should focus on over- and underutilization, but agree unamiously that the ultimate goal of a review system is to develop standards and criteria, compare practice patterns to them and then encourage compliance where variations exist (Items 17 and 18). Respondents were split on whether technical assistance from outside the PSRO was needed (Item 6).

The feasibility issue was raised in several questions. There is split agreement as to whether ambulatory care review is easily feasible, both in general and on a nationwide basis (Items 8, 13 and 15). It was unanamiously agreed that further research is needed on the best approach to changing physician practice patterns and there was split agreement as to whether direct intervention with individuals or intervention with groups of physicians with no individual comparisons is most effective (Item 10).

An additional analysis was conducted on those questions which showed disagreement among respondents. The items were analyzed where two or more respondents appeared to disagree (e.g., at least two or more responses in the "agree" category and at least two or more responses in the "disagree" category). Analysis was conducted to determine whether disagreement may have occurred due to difference of opinion between physicians and nonphysicians who had been heavily involved in the entire project. Respondents substantially disagreed on ten items (56%), however analysis did not clearly indicate differences between the physicians and nonphysicians.

## TABLE 2. SURVEY ITEMS AND RESPONSES:

## MULTNOMAH FOUNDATION FOR MEDICAL CARE

1. a) Our demonstration is a research project wherein data collection will assist in performing subsequent ambulatory care studies.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 7 | 0 | 0 |

b) We are interested only in the development of an operational ambulatory care review system for improving quality of care rendered in our area.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 0 | 1 | 2 |

c) Our demonstration is a combination of research design and implementation of an operational review system. We believe one must conduct adequate front end investigation prior to implementation.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 3 | 0 | 0 |

2. a) In view of the problems in measurement, conducting research on ambulatory care is unlikely to produce meaningful results.

And

b) The prime emphasis of any PSRO should be on development of an operational quality assurance project, research is not likely to result in improved patient care in the practice settings.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 2 | 3 |

c) A PSRO must conduct research to better understand the problem before an operational program to resolve the program can be implemented.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 6 | 0 | 0 |

3. a) In our ambulatory demonstration project, the use of volunteer subjects has been invaluable. No study of ambulatory quality assurance could be completed without voluntary participants.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 4 | 1 | 1 |

b) Using physicians who volunteer their office data is a practical solution to a practical problem (obtaining practice data from a physician's office). In most instances, there is no other choice.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 4 | 0 | 0 |

c) The use of volunteers introduces a bias into the results of any study which limit the generalizability of the findings to the practices studied and reduces the potential for using results in HSQB policy development.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 3 | 1 | 1 |

4. The purpose of a well constructed PSRO ambulatory care review system is:

a) To improve the care rendered to all patients in its area.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 4 | 0 | 1 |

b) Change physician practice patterns which, in turn, would impact upon the care rendered to patients in the area.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 1 | 1 |

c) To improve the quality of care rendered to patients in the office setting as well as to help contain health care costs.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 5 | 0 | 1 |

5. a) In conducting an ambulatory care quality assurance demonstration, reliance on the research findings of others is useful but not mandatory.

And

b) PSROs beginning ambulatory projects should place little reliance on the work of others in establishing a review program, most of our concepts were self generated to accommodate the unique characteristics of our geographic area.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 5 | 2 | 6 |

c) It is necessary to conduct a complete literature search to review the findings of others prior to starting any research or demonstration project.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 0 | 2 |

6. a) Our staff resources were such that little or no technical assistance from outside the PSRO was needed.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 4 | 1 | 3 |

b) In launching an ambulatory care demonstration project heavy emphasis should be placed upon the expertise of various outside consultants for the first two years.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 1 | 1 | 1 |

c) The technical assistance provided through HSQB and HCMS served all of our technical assistance needs during the demonstration.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 0 | 2 | 2 |

7. a) The amount of seriously substandard ambulatory care cannot accurately be assessed based upon our demonstration experience thus far. It is too soon to tell.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 3 | 2 | 0 |

b) Substandard care in the ambulatory sector is pervasive and can be found to a greater or lesser degree in most office practices.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 0 | 1 | 2 |

c) From our experience thus far it appears that the degree of substandard ambulatory care is fairly low reflecting only a small percentage of physicians.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 6 | 0 | 0 |

8. a) Many illnesses treated in the ambulatory sector are ill defined, self-limiting conditions for which there are no clearly accepted therapeutic regimes. As such, review of ambulatory care is not feasible.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 3 | 1 | 1 |

b) Quality assurance in ambulatory care is no different than any other form of care, it exists in finite amounts and those amounts can be measured just the same as inpatient care can be.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 1 | 1 |

c) From our experience as an ambulatory demonstration site, it seems quite feasible to implement quality assurance programs for ambulatory care on a nationwide basis.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 1 | 2 |

9. a) An ambulatory quality assurance program should look at just those physician practice patterns which differ significantly from practice norms for each area.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 1 | 0 | 2 |

b) An ambulatory quality assurance program should look at the entire mainstream of care and seek to optimize the practices of as many doctors as possible.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 0 | 0 |

c) At this time, it is not possible to say whether ambulatory quality assurance programs can be made cost effective enough to review the entire spectrum of ambulatory care.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 7 | 1 | 0 |

10. a) Changing practice behavior is best achieved by direct practice pattern feedback to each practitioner being reviewed.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 4 | 1 | 0 |

b) Feedback comparing individual practices to a norm or standard results in physician defensiveness and resistance. The best way to change practice behavior is through education and general feedback to groups of physicians without individual comparisons.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 2 | 3 |

c) The best approach to changing physician practice patterns for purposes of quality assurance is not known at present, more research on this issue must be undertaken.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 5 | 0 | 0 |

11. a) Cost containment and quality assurance are totally mutually exclusive and cannot be dealt with simultaneously in ambulatory quality assurance efforts.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 1 | 0 | 3 |

b) The primary purpose of a PSRO quality assurance project is to improve patients care regardless of the cost implications.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 0 | 1 | 3 |

c) Ambulatory quality assurance while emphasizing improved patient outcomes must also consider cost effectiveness in patient care if the PSRO program is to survive.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 7 | 0 | 0 |

12. a) Ambulatory care review should focus on those topics which have the greatest potential for improving the patient's health.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 3 | 1 | 0 |

b) Review topics in ambulatory care must be chosen according to data accessibility, and frequency of occurrence in the primary setting.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 6 | 0 | 1 |

c) Review topics are best developed by focusing on specific practice problems determined by physician members of PSRO peer review committees.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 4 | 0 | 2 |

13. a) The approach we have used to conduct ambulatory quality assurance will be acceptable and feasible in conducting review for all physicians.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 3 | 2 |

b) Our demonstration approach is quite unique and unlikely to be duplicated to the point where it would be acceptable to physicians in other PSRO areas.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 1 | 2 |

c) The approach we used in conducting ambulatory quality assurance has been largely unacceptable to physicians.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 0 | 0 | 4 |

14. a) The integration of review for ambulatory services rendered by nonphysicians with existing PSRO efforts is not feasible at this time.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 1 | 2 | 2 |

b) As the trend toward holistic patient care increases, the necessity of reviewing nonphysician treatment will become necessary sometime in the future.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 8 | 0 | 0 |

c) Incorporating the work done by nonphysician practitioners into the peer review process is quite feasible and could be undertaken immediately.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 1 | 1 |

15. a) The procedures for ambulatory quality assurance developed in our demonstration are transferrable to any other PSRO without modification or special arrangements.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 2 | 0 | 3 |

b) The nature of our demonstration is quite unique and it is unlikely that our approach could ever be duplicated in another PSRO.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 0 | 1 | 2 |

c) Transferrence of our ambulatory quality assurance procedures to other PSROs while achievable would entail much effort and very probably modification of arrangements and procedures.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 5 | 1 | 0 |

16. Problems uncovered in practices with respect to one review topic are often associated with problems in other topics.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 6 | 1 | 0 |

17. The criteria developed for each review topic should focus upon over and underutilization of medical services simultaneously.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 4 | 2 | 1 |

18. The ultimate goal of an ambulatory quality assurance review system is to develop standards and criteria, compare practice patterns to them and then encourage compliance where variations exist.

| TOTAL RESPONSES | | |
|---|---|---|
| Agree | Undecided | Disagree |
| 8 | 0 | 0 |

# SECTION IV

# QUANTITATIVE PROGRAM DESCRPTORS

## METHOD

Requests for quantitative descriptions tailored to fit the specific programs of each of the five projects were sent out in August 1978. Requested data involved population and activity items for the sites under study by the projects including such items as the number of hospitals, clinics, physicians, patients and patient visits at these sites. Tabulations were requested of physicians by specialty and patients by source of payment. In addition quantitative descriptors of the review activities were requested. These included numbers of physicians and patients reviewed by topic and the number of patient visits involved. Finally, distribution of the variations or exceptions to review criteria were requested along with quantitative description of the feedback and intervention function of the project. Other data of specific significance to individual projects was also included in the requests.

Quantitative data reports submitted by the projects in response to these requests were screened by HCMS personnel for completeness and consistency and follow up was made by telephone to make the data as valid as possible. Some requested data could not be supplied by the project because it was not available at the sites studied. Only data available as of August 31, 1978 were used and some sites were in the midst of the review cycle at that time. The quantitative data that was submitted by the five projects was formatted by HCMS staff into tabular form designed to be as consistent as possible among projects but still displaying the unique qualities of the individual project.

## SITES AND PHYSICIANS REVIEWED

The two cycles of the ambulatory review project reported here involved a total of 34 physicians practicing at 18 sites and serving an estimated 95,000 patients. Fourteen of these sites were solo practices, the largest clinic, comprising ten physicians, served an estimated 30,000 patients. Physicians at this site were reviewed for eight topics, other sites ranged from 1 to 5 topics. Table 3 shows the physician complements for the 18 sites along with the estimated patients served and indication of topics reviewed at the sites. Titles for the topics may be found on Table 4 which details the review activity by cycle and topic.

## PATIENTS AND VISITS REVIEWED

Table 4 lists all of the 13 topics reviewed during the two cycles. No data is presented for four of the topics for which the review process was not completed through the intervention phase. Review activity ranged from Chemistry Screens, the largest, for which 24 of the 31 physicians practicing at 15 sites and serving an estimated 101,500 patients were subjected to reviews involving 636 patient charts to Coumadin for which 6 of 12 physicians practicing at two sites were subjected to reviews involving only four patient charts. Of the total of 1,427 charts reviewed during the project, 695 were reviewed during the first cycle and 732 during the second cycle.

Table 4 also shows the number of physicians found to have variations to criteria for each topic and the total variations found. Twenty of the 25 physicians reviewed during the first cycle were found to have one or more variations while only 30 of the 52 second cycle physicians reviewed were found to have variations. Physicians with variations ranged from 0% for Coumadin to 100% for three of the topics. The mean rate was 65%, the median 82%. The largest number of variations were found in reviewing the Hypertension topic with 258.

## TABLE 3. BACKGROUND DATA:

## PHYSICIANS, PATIENTS AND TOPICS BY SITE

| Amb. Site | No. Of Phys. | 1978 Estimated Patients | Topics (See Table 4 For Titles) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | First Cycle | | | | | | Second Cycle | | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | 10 | 30,000 | x | x | | | x | x | | x | x | x | x | | |
| 2 | 1 | 1,000 | | x | | | | x | | | | | | | |
| 3 | 1 | 3,000 | x | | | | | | | | | x | | | |
| 4 | 1 | 3,000 | x | | | | | | | | | x | | | |
| 5 | 5 | 15,000 | x | | | | | | | x | x | x | | | |
| 6 | 2 | 5,000 | x | | | | | | | | | x | x | | |
| 7 | 1 | 1,500 | x | | | | | | | | | x | | | |
| 8 | 1 | 4,000 | x | | | | x | | | | | x | | | |
| 9 | 3 | 6,000 | x | | | | | | | | | x | | | |
| 10 | 1 | 3,600 | | | | | | | | | | x | | | |
| 11 | 1 | 1,000 | | | | | | | | | | x | | | |
| 12 | 1 | 2,400 | x | | | | | | | | | x | | | |
| 13 | 1 | 4,000 | | | | | | | x | | | | | | |
| 14 | 1 | 3,500 | x | | | | x | x | | | x | x | | | |
| 15 | 1 | 4,000 | | | | | | | | | | x | | | |
| 16 | 1 | 2,500 | x | | | | | x | | | | x | | | |
| 17 | 1 | 3,500 | | | | | | | | x | | x | | | |
| 18 | 1 | 2,000 | | x | | | | x | | | | | | | |
| TOTAL | 34 | 95,000 | 11 | 3 | | | 3 | 5 | 1 | 3 | 3 | 15 | 2 | | |

## TABLE 4. REVIEW DATA:

## PHYSICIANS AND PATIENTS REVIEWED AND VARIATIONS NOTED BY TOPIC

| Cycle | No. | Topic* | No. Of Sites | Physicians At Sites | Estimated Patients At Sites | Physicians Reviewed (%) | Patients Reviewed | Phys. With Variations (%) | No. Of Var. |
|---|---|---|---|---|---|---|---|---|---|
| I | 1 | Hypertension | 11 | 27 | 75,400 | 17 (63%) | 440 | 14 (82%) | 258 |
| | 2 | Hyperactivity | 3 | 12 | 33,000 | 2 (17%) | 6 | 2(100%) | 13 |
| | 3 | Ped. Gastroenteritis | NA | | | | | | |
| | 4 | Gonorrhea Culture | NA | | | | | | |
| | 5 | Pelvic Exam | 3 | 12 | 37,500 | 2 (17%) | 69 | 2(100%) | 14 |
| | 6 | Well Child Care | 5 | 14 | 39,000 | 4 (29%) | 180 | 2 (50%) | 88 |
| | TOTAL | | 22 | 65 | 184,900 | 25 (38%) | 695 | 20 (80%) | 373 |
| II | 1 | Hypoglycemia | 1 | 1 | 4,000 | 1(100%) | 37 | 1(100%) | 36 |
| | 2 | Diabetes Mellitus | 3 | 16 | 48,500 | 11 (69%) | 34 | 3 (27%) | 64 |
| | 3 | Iron Def. Anemia | 3 | 16 | 48,500 | 10 (63%) | 21 | 3 (30%) | 14 |
| | 4 | Chemistry Screens | 15 | 31 | 101,500 | 24 (77%) | 636 | 23 (96%) | 93 |
| | 5 | Coumadin | 2 | 12 | 35,000 | 6 (50%) | 4 | 0 (0%) | 0 |
| | 6 | Lithium Treatment | NA | | | | | | |
| | 7 | Psych. Consultations | NA | | | | | | |
| | TOTAL | | 24 | 76 | 237,500 | 52 (68%) | 732 | 30 (58%) | 207 |
| | GRAND TOTAL | | 46 | 141 | 422,400 | 77 (55%) | 1,427 | 50 (65%) | 580 |
| | INDIVIDUALS | | 18 | 34 | 108,500 | 34(100%) | | | |

*Since the final data collection date, MFMC has added three more topics to their second round of review.

# SECTION V

# DISCUSSION OF REVIEW DATA

## METHOD

A five percent random sample of abstracts was requested by HCMS for the purpose of analyzing the availability of the review data. Of interest was the frequency with which information, positive and negative, concerning each criteria was recorded on the abstract. The project responded with somewhat larger samples, especially for those topics involving a small study population. HCMS staff used all of the available data in estimating review data parameters.

The importance of any given data item to the monitoring of the quality of medical care is related in a positive direction to the product of three ratios:

1. Probability of the availability of the data in the chart.
2. Ratio of identified deficiencies to total items recorded.
3. Relative importance of a given deficiency to the care of the patient.

The first of the ratios has been approximated for review data by criteria category and topic by using the HCMS sample of review abstracts. The second of the ratios will be discussed in connection with the section on Intervention Data. The third is a matter of medical research and opinion and is beyond the purview of this report.

Review and intervention data through August 31, 1978 was submitted by the report for the total study population and is included in this report. (Review and intervention activity continued beyond that date.) The failure to meet a given criteria was noted on the abstract as a "variation." Some of these variations were pointed out to the providers involved during the intervention process and where the provider felt that the case had been appropriate, the term "justified" was used. Variations not so justified were termed "deficiencies."

## CRITERIA/DATA ITEMS

Table 5 lists abstracted data items associated with criteria for the eleven topics studied. Organization is by topic for which are shown:

1. Number of cases studied
2. Number of cases in HCMS sample
3. Mean years of care for patients in the sample
4. Mean visits per year for those patients

Data items are listed for each topic and appear in the following categories:

A. History and Physical Exam Items

B. Diagnostic Procedures (including Immunizations)

C. Therapy

D. Contraindicated Therapy

E. Management (other than therapeutic)

F. Outcomes

Multnomah criteria involve the interpretation of one or more data items in terms of values, frequencies, presence or absence. Although some values are entered on the abstract form, most entries indicate only compliance (+) or noncompliance (-) with the criteria or the fact that the item is not mentioned in the record (0). Criteria items are listed within category and the required form of entry indicated. The number of patients for whom a data item was noted one or more times is shown for each data item as is the percent of patients in the sample. Shown also are the total number of times the item was noted in the sample (# Proc) and corresponding rates per visit and per patient year of care. Details of patient follow up are given for Topic 6--Chemistry Screens (Table 5H).

## TABLE 5A CRITERIA/DATA ITEMS - FIRST CYCLE

| | | |
|---|---|---|
| 1. HYPERTENSION | Total Cases: 440 | Mean Years of Care: 1.52 |
| | Sample Size: 31 | Visits Per Patient Year: 5.3 |

Criteria for: Management of Hypertension in adults 18 years of age and older.

Perceived Problem: Under-treatment for essential hypertension.

Time Frame: Patients new to the practice or diagnosed after January 1, 1975.

| | | | SAMPLE DATA | | |
|---|---|---|---|---|---|
| CRITERIA/DATA ITEMS | Number of Patients | % | Number of Procedures | (249) Per Visit | Per Patient Year |
| A. History and Physical | | | | | |
| 1. Current Drugs* | 16 | 52 | 16 | .06 | 0.3 |
| 2. Blood Pressure** | 31 | 100 | 235 | .94 | 5.0 |
| B. Diagnostic Procedures | | | | | |
| 1. UA Complete | 25 | 81 | 36 | .14 | 0.8 |
| 2. Potassium | 26 | 84 | 39 | .16 | 0.8 |
| 3. BUN-Creatinine | 24 | 77 | 35 | .14 | 0.7 |
| 4. Uric Acid | 25 | 81 | 36 | .14 | 0.8 |
| 5. EKG | 25 | 81 | 34 | .14 | 0.7 |
| 6. Chest X-Ray | 21 | 68 | 27 | .11 | 0.6 |
| C. Therapy | | | | | |
| 1. Hypertensive Drugs* | 30 | 97 | 214 | .86 | 4.6 |
| D. Outcome | | | | | |
| 1. Problem+ | 16 | 52 | 28 | .11 | 0.6 |
| 2. Consultation | 0 | 0 | 0 | .00 | 0.0 |

*Name of drug recorded
**Values recorded
+Brief description of problem recorded

## TABLE 5B CRITERIA/DATA ITEMS - FIRST CYCLE

2. HYPERACTIVITY

Total Cases: 6

Mean Years of Care: 3.33

Sample Size: 2

Visits Per Patient Year: 5.9

Criteria for: Management of Hyperactivity and Learning Disabilities, children under 12 years of age.

Perceived Problem: Overuse of drugs for behavior control without adequate workup and follow up

Time Frame: Initial diagnosis must be made at least six months prior to abstraction

| | | | SAMPLE DATA | | |
|---|---|---|---|---|---|
| CRITERIA/DATA ITEMS | Number of Patients | % | Number of Procedures | (39) Per Visit | Per Patient Year |
| A. History and Physical | | | | | |
| 1. Second Observation | 2 | 100 | 2 | .05 | .3 |
| 2. Early Onset | 2 | 100 | 5 | .13 | .8 |
| B. Diagnostic Procedures | | | | | |
| 1. Psychological Evaluation | 1 | 50 | 1 | .03 | .2 |
| 2. I.Q. Test | 1 | 50 | 1 | .03 | .2 |
| C. Therapy | | | | | |
| 1. Psychotherapy | 1 | 50 | 1 | .03 | .2 |
| 2. Tutoring | 2 | 100 | 2 | .05 | .3 |
| 3. Drug Therapy | 2 | 100 | 37 | .95 | 5.6 |
| D. Contraindicated Therapy | | | | | |
| 1. Tranquilizers | 0 | 0 | 0 | .00 | .0 |
| E. Management | | | | | |
| 1. Problem | 0 | 0 | 0 | .00 | .0 |
| 2. Referral | 0 | 0 | 0 | .00 | .0 |

## TABLE 5C CRITERIA/DATA ITEMS - FIRST CYCLE

5. PELVIC EXAM

| | | | |
|---|---|---|---|
| Total Cases: | 69 | Mean Years of Care: | NA |
| Sample Size: | 4 | Visits Per Patient Year: | NA |

Criteria for: Completion of Pelvic Exam with Physical Exam, females, 18 years of age and older.

Perceived Problem: Failure to complete a Pelvic and Rectal Exam, and pap smear as part of a general physical exam.

Time Frame: Exams after January 1, 1976.

SAMPLE DATA

| CRITERIA/DATA ITEMS | Number of Patients | % | Number of Procedures | (4) * Per Visit | Per Patient Year |
|---|---|---|---|---|---|
| A. History and Physical | | | | | |
| 1. Oral Contraceptives | 0 | 0 | 0 | 0 | NA |
| 2. Estrogen Therapy | 0 | 0 | 0 | 0 | |
| 3. Presence of Cervix | 4 | 100 | 4 | 1.00 | |
| B. Diagnostic Procedures | | | | | |
| 1. Pelvic and Bi-manual Exam | 3 | 75 | 3 | .75 | |
| 2. Digital Rectal Exam | 2 | 50 | 2 | .50 | |
| 3. Pap Test | 4 | 100 | 4 | 1.00 | |

*One visit recorded for each patient.

## TABLE 5D CRITERIA/DATA ITEMS - FIRST CYCLE

6. WELL CHILD

Total Cases: 180
Sample Size: 7
Mean Years of Care: 0.93
Visits Per Patient Year: 3.7

Criteria for: Management of Well Child Care, under six years of age.

Perceived Problem: Differences in immunizations and exams between family practitioners and pediatricians.

Time Frame: Patient must have been followed for at least 3 well child visit.

SAMPLE DATA

| CRITERIA/DATA ITEMS | Number of Patients | % | Number of Procedures | (24) Per Visit | Per Patient Year |
|---|---|---|---|---|---|
| A. History and Physical | | | | | |
| 1. Height | 7 | 100 | 24 | 1.00 | 3.7 |
| 2. Weight | 7 | 100 | 24 | 1.00 | 3.7 |
| 3. Head Circ. | 7 | 100 | 20 | .83 | 3.1 |
| 4. Hx and Pe | 7 | 100 | 24 | 1.00 | 3.7 |
| B. Diagnostic Procedures (Incl. Immun.) | | | | | |
| 1. Hct | 5 | 86 | 6 | .25 | 0.9 |
| 2. Urine Analysis | 0 | 0 | 0 | .00 | .0 |
| 3. Vision | 0 | 0 | 0 | .00 | .0 |
| 4. DPT | 7 | 100 | 21 | .88 | 3.2 |
| 5. OPV | 7 | 100 | 21 | .88 | 3.2 |
| 6. PKU | 7 | 100 | 7 | .29 | 1.1 |
| 7. Measles | 3 | 43 | 3 | .13 | 0.5 |
| 8. Mumps | 3 | 43 | 3 | .13 | 0.5 |
| 9. Rubella | 3 | 43 | 3 | .13 | 0.5 |
| 10. PPD or Tine | 5 | 71 | 5 | .21 | 0.8 |
| 11. Problem | 0 | 0 | 0 | .00 | .0 |

## TABLE 5E CRITERIA/DATA ITEMS - SECOND CYCLE

1. HYPOGLYCEMIA

Total Cases: 37

Sample Size: 3

Mean Years of Care: 0.81

Visits Per Patient Year: 4.1

Criteria for: Reactive (functional) Hypoglycemia Any Age

Perceived Problem: Inappropriate Diagnosis

Time Frame: Not Stated

SAMPLE DATA

| CRITERIA/DATA ITEMS | Number of Patients | % | Number of Procedures | Per Visit | Per Patient Year |
|---|---|---|---|---|---|
| A. History and Physical | | | | | |
| 1. Perspiration | 0 | 0 | 0 | .00 | .0 |
| 2. Palpitations | 0 | 0 | 0 | .00 | .0 |
| 3. Weakness | 0 | 0 | 0 | .00 | .0 |
| 4. Headaches | 2 | 67 | 5 | .50 | 2.1 |
| 5. Confusion | 2 | 67 | 2 | .20 | .8 |
| B. Diagnostic Procedures | | | | | |
| 1. Plasma Glucose** | 3 | 100 | 8 | .80 | 3.3 |
| 2. Five Hour GTT** | 3 | 100 | 3 | .30 | 1.2 |
| C. Therapy | | | | | |
| 1. Diet | 3 | 100 | 3 | .30 | 1.2 |
| D. Contraindicated Therapy | | | | | |
| 1. Adrenal Cortical Hormone | 0 | 0 | 0 | .00 | .0 |
| 2. Carb. Diet | 0 | 0 | 0 | .00 | .0 |
| E. Management | | | | | |
| 1. Consultation | 0 | 0 | 0 | .00 | .0 |

**Values Recorded

## TABLE 5F CRITERIA/DATA ITEMS - SECOND CYCLE

2. DIABETES MELLITUS Total Cases: 34 Mean Years of Care: NA

Sample Size: 15 Visits Per Patient Year: NA

Criteria for: Diabetes Mellitus (Insulin Dependent) Any Age

Perceived Problem: Inappropriate therapy - including patient education

Time Frame: Not Specified

| CRITERIA/DATA ITEMS | Number of Patients | % | SAMPLE DATA<br>Number of Procedures | Per Visit | Per Patient Year |
|---|---|---|---|---|---|
| A. History and Physical | | | (Two different abstract forms were used; coult not combine to complete patient profiles) | | |
| None | | | | | |
| B. Diagnostic Procedures | | | | | |
| 1. Fasting Plasma Sugar | 0 | 0 | | | |
| 2. Blood Sugar - Post Prandial** | 6 | 40 | | | |
| C. Therapy | | | | | |
| 1. Insulin | 15 | 100 | | | |
| 2. Diet | 15 | 100 | | | |
| 3. Patient Education | 14 | 93 | | | |
| D. Contraindicated Therapy | | | | | |
| 1. Oral Hypoglycemics | 0 | 0 | | | |
| E. Management | | | | | |
| 1. Office Visit every 3 Months++ | NA | | | | |
| 2. Height | 1 | 7 | | | |
| 3. Weight | 15 | 100 | | | |
| F. Outcome | | | | | |
| 1. Children UA | 1 | 7 | | | |
| 2. Adults UA | 13 | 87 | | | |
| 3. Fasting Plasma Gluc.** | 3 | 20 | | | |
| 4. Blood Sugar - 2 Hours** P.P. | 13 | 87 | | | |
| 5. Insulin Reaction | 5 | 33 | | | |
| 6. Ketoacidosis | 0 | 0 | | | |

**Values Recorded
++Dates Recorded

## TABLE 5G CRITERIA/DATA ITEMS - SECOND CYCLE

3. ANEMIA

Total Cases: 21

Sample Size: 7

Mean Years of Care: 1.61

Visits Per Patient Year: 4.3

Criteria for: Iron Deficiency Anemia Age 20 or over

Perceived Problem: Therapy with iron alone or in combination without minimal study.

Time Frame: Not Stated

SAMPLE DATA

| CRITERIA/DATA ITEMS | Number of Patients | % | Number of Procedures | Per Visit | Per Patient Year |
|---|---|---|---|---|---|
| A. History and Physical | | | | | |
| 1. Non-Gastro. Bleeding | 0 | 0 | 0 | .00 | .0 |
| B. Diagnostic Procedures | | | | | |
| 1. HCT** | 7 | 100 | 22 | .46 | 2.0 |
| 2. Hemo.** | 7 | 100 | 26 | .54 | 2.3 |
| 3. CBC-MCV | 0 | 0 | 0 | .00 | .0 |
| 4. CBC-MCHC + | 1 | 14 | 3 | .06 | 0.3 |
| 5. CBC-MCC | 0 | 0 | 0 | .00 | .0 |
| 6. Hypochromic Blood Smear | 1 | 14 | 3 | .06 | 0.3 |
| 7. Upper GI or Gastroscopy | 1 | 14 | 1 | .02 | 0.1 |
| 8. Barium Enema | 0 | 0 | 0 | .00 | .0 |
| 9. Coloscopy or Sigmoid. | 2 | 29 | 5 | .10 | 0.4 |
| C. Therapy | | | | | |
| 1. Iron Therapy** | 7 | 100 | 41 | .85 | 3.6 |
| D. Management | | | | | |
| 1. Consultation | 1 | 14 | 1 | .02 | 0.1 |

**Values Recorded
+Brief description of problem recorded

## TABLE 5H CRITERIA/DATA ITEMS - SECOND CYCLE

4. CHEMISTRY SCREENS

| | | | |
|---|---|---|---|
| Total Cases: | 636 | Mean Years of Care: | NA |
| Sample Size: | 57 | Visits Per Patient Year: | NA |

Criteria for: Chemistry Screen Results

Perceived Problem: Inadequate follow-up for abnormal chemistry screen results

Time Frame: Not Specified.

CRITERIA/DATA ITEMS

SAMPLE DATA

| | Patients With Test | | Abnormals | | Patients With Retest | | Abnormals | | Patients With Notation* | |
|---|---|---|---|---|---|---|---|---|---|---|
| B. Diagnostic Procedures | # | % | # | % | # | % | # | % | # | % |
| 1. K+ | 50 | 88 | 10 | 18 | 3 | 5 | 2 | 4 | 7 | 12 |
| 2. Bilirubin | 56 | 98 | 15 | 26 | 5 | 9 | 4 | 7 | 8 | 14 |
| 3. Creatinine | 51 | 89 | 5 | 9 | 5 | 9 | 3 | 5 | 1 | 2 |
| 4. Calcium | 57 | 100 | 9 | 16 | 1 | 2 | 0 | 0 | 6 | 11 |
| 5. Uric Acid | 57 | 100 | 15 | 26 | 5 | 9 | 0 | 0 | 9 | 16 |
| 6. SGOT | 57 | 100 | 6 | 11 | 4 | 7 | 3 | 5 | 2 | 4 |
| 7. Protein | 46 | 98 | 5 | 9 | 3 | 5 | 0 | 0 | 1 | 2 |
| 8. Random Bld. Gluc. | 57 | 100 | 24 | 42 | 3 | 5 | 1 | 2 | 15 | 26 |

*Explanatory Notation.

Values required for all procedures.

## TABLE 5I CRITERIA/DATA ITEMS - SECOND CYCLE

5. COUMADIN

Total Cases: 4+++
Sample Size: 5
Mean Years of Care: 0.72
Visits Per Patient Year: 16.2

Criteria for: Use of Coumadin
Age: All ages

Perceived Problem: Anticoagulant therapy (Coumadin) without knowledge of coagulability of the patient's blood, i.e., treatment without monitoring the prothrombin time.

Time Frame: Not Specified

SAMPLE DATA

| CRITERIA/DATA ITEMS | Number of Patients | % | Number of Procedures | Per Visit | Per Patient Year |
|---|---|---|---|---|---|
| A. History and Physical | | | | | |
| 1. Thrombophlebitis | 2 | 40 | 2 | .03 | 0.6 |
| 2. CVA | 0 | 0 | 0 | .00 | .0 |
| 3. MI | 1 | 20 | 1 | .02 | 0.3 |
| 4. Pulmonary Embolus | 1 | 20 | 1 | .02 | 0.3 |
| 5. Prosth. Heart Valve | 1 | 20 | 1 | .02 | 0.3 |
| B. Diagnostic Procedures | | | | | |
| 1. Protime** | 5 | 100 | 55 | .95 | 15.4 |
| C. Therapy | | | | | |
| 1. Coumadin≠≠ | 5 | 100 | 51 | .88 | 14.2 |
| D. Contraindicated Therapy | | | | | |
| 1. Hemorrhage | 0 | 0 | 0 | .00 | .0 |
| 2. Pregnancy | 0 | 0 | 0 | .00 | .0 |
| F. Outcome | | | | | |
| 1. Symptoms+ | 3 | 60 | 5 | .09 | 1.4 |

≠≠Dosage
**Values
+++Count reported in letter
+Brief description of problem recorded

## AVAILABILITY OF DATA

The importance of any given data item to the monitoring of the quality of medical care is related in a positive direction to the product of three ratios:

1. Probability of the availability of the data in the chart
2. Ratio of identified deficiencies to total items recorded
3. Relative importance of a given deficiency to the care of the patient

The first of the ratios has been approximated for review data by criteria category and topic by using the HCMS sample of review abstracts. The second of the ratios will be discussed in connection with the section on Intervention Data. The third is a matter of medical research and opinion and is beyond the purview of this report.

Table 6 details the dimension of the HCMS Sample of Review Data. The sample included 131 abstracts among the 9 topics for which data was available and represented about 10% of the total cases reviewed.

Table 7 shows the percentage of availability of data for reviewing 97 criteria data items classified among 6 categories and distributed among the 9 topics. The number of cases in the sample is listed for each topic (S). Numbers of data items (C), patients for whom such data items are recorded (N), are listed by topic and category. The percentage of availability (%) is calculated by this formula:

$$\% = 100\, N/(S \cdot C)$$

It may be noted that while data items in the Diagnostic and Therapy categories were above average in availability and History and Physical items were near the average for all categories, Management and Outcome categories showed very low degrees of availability. Data items for the Contraindicated Therapy category were not recorded in the sample at all. While the ratio of variations to items recorded may be expected to be high for Contraindicated Therapies, the extremely low data availability ratio for this group of data items would suggest that there might be few, if any, variations expected.

TABLE 6. DISTRIBUTION OF CASES REVIEWED AND HCMS SAMPLE BY TOPIC

| TOPIC | Sites Reviewed | Total Physicians at Sites | Physicians Reviewed | Estim. Patients Served by Sites | Cases Reviewed | Cases in HCMS Sample (%) |
|---|---|---|---|---|---|---|
| I 1. Hypertension | 11 | 27 | 17 (63%) | 89,400 | 440 | 31 (7) |
| 2. Hyperactivity | 5 | 14 | 2 (14%) | 39,000 | 6 | 2 (33) |
| 5. Pelvic Exam | 2 | 12 | 2 (17%) | 33,500 | 69 | 4 (6) |
| 6. Well Child Exam | 3 | 12 | 4 (33%) | 33,000 | 180 | 7 (4) |
| II 1. Hypoglycemia | 1 | 1 | 1(100%) | 4,000 | 37 | 3 (8) |
| 2. Diabetes Mellitus | 3 | 16 | 11 (69%) | 48,500 | 34 | 15 (44) |
| 3. Anemia | 3 | 16 | 10 (63%) | 48,000 | 21 | 7 (33) |
| 4. Chemistry Screens | 15 | 31 | 24 (77%) | 101,500 | 636 | 57 (9) |
| 5. Coumadin | 2 | 12 | 6 (50%) | 35,000 | 4 | 5(125) |
| TOTAL | 45 | 141 | 72 (51%) | 431,900 | 1,427 | 131 (10) |
| INDIVIDUALS | 18 | 34 | 34(100%) | 108,500 | | |

## TABLE 7. AVAILABILITY OF REVIEW DATA BY TOPIC AND CRITERIA CATEGORY BASED ON HCMS SAMPLE DATA

| | TOPIC | S | History and Physical | | | Diagnostic Procedures | | | Therapy | | | Contraindicated Therapy | | | Management | | | Outcome | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | C | N | % | C | N | % | C | N | % | C | N | % | C | N | % | C | N | % | C | N | % |
| I | 1. Hypertension | 31 | 2 | 47 | 76 | 6 | 146 | 78 | 1 | 30 | 97 | | | | | | | 2 | 16 | 28 | 11 | 239 | 70 |
| | 2. Hyperactivity | 2 | 2 | 4 | 100 | 2 | 2 | 50 | 3 | 5 | 83 | 1 | 0 | 0 | 2 | 0 | 0 | | | | 10 | 11 | 55 |
| | 5. Pelvic Exam | 4 | 3 | 4 | 33 | 3 | 9 | 75 | | | | | | | | | | | | | 6 | 13 | 54 |
| | 6. Well Child Exam | 7 | 4 | 28 | 100 | 11 | 41 | 53 | | | | | | | | | | | | | 15 | 69 | 66 |
| | TOTAL | 44 | 11 | 83 | 78 | 22 | 198 | 71 | 4 | 35 | 95 | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 16 | 28 | 42 | 332 | 68 |
| II | 1. Hypoglycemia | 3 | 5 | 4 | 27 | 2 | 6 | 100 | 1 | 3 | 100 | 2 | 0 | 0 | 1 | 0 | 0 | | | | 11 | 13 | 39 |
| | 2. Diabetes Mellitus | 15 | | | | 2 | 6 | 20 | 3 | 44 | 98 | 1 | 0 | 0 | 2 | 16 | 53 | 6 | 35 | 39 | 14 | 101 | 48 |
| | 3. Iron Deficiency Anemia | 7 | 1 | 0 | 0 | 9 | 19 | 30 | 1 | 7 | 100 | | | | 1 | 1 | 14 | | | | 12 | 27 | 32 |
| | 4. Chemistry Screens | 57 | | | | 8 | 441 | 96 | | | | | | | | | | | | | 8 | 441 | 96 |
| | 5. Coumadin | 5 | 5 | 5 | 20 | 1 | 5 | 100 | 1 | 5 | 100 | 2 | 0 | 0 | | | | 1 | 3 | 60 | 10 | 18 | 36 |
| | TOTAL | 87 | 11 | 9 | 19 | 22 | 477 | 85 | 6 | 59 | 98 | 5 | 0 | 0 | 4 | 17 | 43 | 7 | 38 | 40 | 55 | 600 | 72 |
| GRAND TOTAL | | 131 | 22 | 92 | 60 | 44 | 675 | 80 | 10 | 94 | 97 | 6 | 0 | 0 | 6 | 17 | 39 | 9 | 54 | 34 | 97 | 932 | 70 |

Key: S - Sample Size
C - Number of data items listed as criteria for this category
N - Numerator, number of patients for which each data item was recorded, summed by category
% - 100 N/(S · C)

## REVIEW AND INTERVENTION

Table 8 presents for each topic a quantitative description of the review activity associated with that topic. Data is classified on the basis of the six categories of criteria described in the preceding section. The table lists the total number of criteria for each category, the number of physicians for whom variations were recorded and the total of those variations.

Table 9 summarizes the variation data detailed in Table 8 by criteria category and cycle. As previous studies have indicated, use of essential criteria can result in large variation rates. Therefore, until the justification procedures are complete, the variation rate per physician should not be interpreted as a reflection of quality of care. It is quite evident that diagnostic procedure criteria are not only the most used in review but also by far the most productive in identifying variations. Criteria in the History and Physical and the Therapy categories were more productive of variations for topics in the first cycle while Management and Outcome criteria were more productive for second cycle topics. Few Contraindicative criteria were used and these produced no variations in any of the studies.

Comparing the results of Table 9 with the percentage of data availability developed for the HCMS sample in Table 7 gives some insight into criteria productivity. In the History and Physical category data was 78% available on first cycle topics but only 19% available on second cycle. The difference between first and second cycle productivity of variations may be explained by the difference in data availability. Indeed referring back to the criteria/data item listings in Table 5 we note that the first cycle topics used many readily available items such as blood pressure, height and weight while the second cycle criteria involved symptoms and histories of symptoms. On the other hand criteria in the Therapy category had high data availability levels in both cycles, but produced relatively few variations in the second cycle. Contraindicated Therapies were not observed in the HCMS sample of review data and the absence of variations may indicate that none were observed in the studies. Since complete data sets were not available on justification rates for variations reported here, no justification statistics are shown in the previous tables.

## TABLE 8A. VARIATION DATA

### I1: Hypertension

| Criteria Category | No. Of Crit. | Phys. With Variations | No. Of Variations |
|---|---|---|---|
| A. History & Physical | 2 | 2 | 4 |
| B. Diagnostic Procedure (Incl. Immun.) | 6 | 13 | 212 |
| C. Therapy | 1 | 12 | 42 |
| D. Contraindications | | | |
| E. Management | | | |
| F. Outcome | 2 | | |
| TOTAL | 11 | 27 | 258 |

## TABLE 8B. VARIATION DATA

### I2: Hyperactivity

| Criteria Category | No. Of Crit. | Phys. With Variations | No. Of Variations |
|---|---|---|---|
| A. History & Physical | 2 | 2 | 4 |
| B. Diagnostic Procedure (Incl. Immun.) | 2 | 2 | 9 |
| C. Therapy | 3 | | |
| D. Contraindications | 1 | | |
| E. Management | 2 | | |
| F. Outcome | | | |
| TOTAL | 10 | 4 | 13 |

## TABLE 8C. VARIATION DATA

### I5: Pelvic Exam

| | Criteria Category | No. Of Crit. | Phys. With Variations | No. Of Variations |
|---|---|---|---|---|
| A. | History & Physical | 3 | 1 | 3 |
| B. | Diagnostic Procedure (Incl. Immun.) | 3 | 2 | 11 |
| C. | Therapy | | | |
| D. | Contraindications | | | |
| E. | Management | | | |
| F. | Outcome | | | |
| | TOTAL | 6 | 3 | 14 |

## TABLE 8D. VARIATION DATA

### I6. Well Child Exam

| | Criteria Category | No. Of Crit. | Phys. With Variations | No. Of Variations |
|---|---|---|---|---|
| A. | History & Physical | 4 | 2 | 47 |
| B. | Diagnostic Procedure (Incl. Immun.) | 11 | 2 | 41 |
| C. | Therapy | | | |
| D. | Contraindications | | | |
| E. | Management | | | |
| F. | Outcome | | | |
| | TOTAL | 15 | 4 | 88 |

## TABLE 8E. VARIATION DATA

### II1: Hypoglycemia

| Criteria Category | No. Of Crit. | Phys. With Variations | No. Of Variations |
|---|---|---|---|
| A. History & Physical | 5 | 1 | 2 |
| B. Diagnostic Procedure (Incl. Immun.) | 2 | 1 | 19 |
| C. Therapy | 1 | | |
| D. Contraindications | 2 | | |
| E. Management | 1 | 1 | 15 |
| F. Outcome | | | |
| TOTAL | 11 | 3 | 36 |

## TABLE 8F. VARIATION DATA

### II2: Diabetes Mellitus

| Criteria Category | No. Of Crit. | Phys. With Variations | No. Of Variations |
|---|---|---|---|
| A. History & Physical | | | |
| B. Diagnostic Procedure (Incl. Immun.) | 2 | | |
| C. Therapy | 3 | 1 | 3 |
| D. Contraindications | 1 | | |
| E. Management | 3 | 3 | 30 |
| F. Outcome | 6 | 3 | 31 |
| TOTAL | 15 | 7 | 64 |

## TABLE 8G. VARIATION DATA

### II3: Anemia

| | Criteria Category | No. Of Crit. | Phys. With Variations | No. Of Variations |
|---|---|---|---|---|
| A. | History & Physical | 1 | | |
| B. | Diagnostic Procedure (Incl. Immun.) | 9 | 2 | 11 |
| C. | Therapy | 1 | 2 | 3 |
| D. | Contraindications | | | |
| E. | Management | 1 | | |
| F. | Outcome | | | |
| | TOTAL | 12 | 4 | 14 |

## TABLE 8H. VARIATION DATA

### II4: Chemistry Screens

| | Criteria Category | No. Of Crit. | Phys. With Variations | No. Of Variations |
|---|---|---|---|---|
| A. | History & Physical | | | |
| B. | Diagnostic Procedure (Incl. Immun.) | 8 | 14 | 93 |
| C. | Therapy | | | |
| D. | Contraindications | | | |
| E. | Management | | | |
| F. | Outcome | | | |
| | TOTAL | 8 | 14 | 93 |

# TABLE 8I. VARIATION DATA

## II5: Coumadin

| | Criteria Category | No. Of Crit. | Phys. With Variations | No. Of Variations |
|---|---|---|---|---|
| A. | History & Physical | 5 | | |
| B. | Diagnostic Procedure (Incl. Immun.) | 1 | | |
| C. | Therapy | 1 | | |
| D. | Contraindications | 2 | | |
| E. | Management | | | |
| F. | Outcome | 1 | | |
| | TOTAL | 10 | | |

## TABLE 9. CRITERIA VARIATIONS BY CATEGORY

## FOR CYCLES I AND II TOPICS AND TOTAL

| Criteria Category | No. Of Crit. |  |  | Phys. With Variations |  |  | Total Variations |  |  |
|---|---|---|---|---|---|---|---|---|---|
|  | I | II | T | I | II | T | I | II | T |
| 1. History and Physical | 11 | 11 | 22 | 7 | 1 | 8 | 58 | 2 | 60 |
| 2. Diagnostic Proc. | 22 | 22 | 44 | 19 | 17 | 36 | 273 | 123 | 396 |
| 3. Therapy | 4 | 6 | 10 | 12 | 3 | 15 | 42 | 6 | 48 |
| 4. Contraindications | 1 | 5 | 6 |  |  | 0 |  |  | 0 |
| 5. Management | 2 | 5 | 7 |  | 4 | 4 |  | 45 | 45 |
| 6. Outcome | 2 | 7 | 9 |  | 3 | 3 |  | 31 | 31 |
| TOTAL | 42 | 56 | 98 | 38 | 28 | 66 | 373 | 207 | 580 |

## SECTION VI

## RESOURCES AND COST

## INTRODUCTION AND METHOD

This section presents the personnel resources used by MFMC in planning, developing and operating an ambulatory review program from October 1, 1976 to June 30, 1978.

Personnel and other resources for specific functions are analyzed to present trends over time and to provide some indication of the resources required by review organizations during implementation of ambulatory review.

To develop accurate information on resource use, MFMC collected personnel hours spent on specific activities and forwarded the information to HCMS. Three conditions suggested special procedures for recording and collecting personnel hours:

1. Having MFMC personnel record their hours was likely to increase the face validity of the information collected.
2. Vouchered cost information was not considered reliable because of the variety of PSRO procedures used in billing the Health Standards and Quality Bureau (HSQB).
3. Vouchered personnel information frequently does not contain volunteer physician time and overtime which are required for an accurate estimate of resource use.

In collecting resource information HCMS and each PSRO discussed systematic recording procedures, developed data compilation procedures and defined specific terms and categories. Participants in the demonstration project were asked to describe their ambulatory review activities and record the number of hours spent on a daily or weekly basis. During initial discussions, HCMS and MFMC developed rigorous procedures for collection of personnel data, and a monthly activity log with a standard format was designed to record information. The logs and all minutes of meetings were forwarded to HCMS on a monthly basis.

## Categorization and Compilation of Resource Data

To facilitate the compilation and presentation of data, HCMS classified the information contained in the MFMC logs into a standard format composed of three personnel categories:

1. Physicians--including physicians working either in staff capacity or as special panel consultants.
2. Management/Technical
   - a) Management--all personnel assigned the responsibility to administer the project or to assist in managing the project
   - b) Technical--personnel principally engaged in technical design of the project, analysis of the data, providing liaison with data processing, etc.
3. Data Collection/Clerical
   - a) Data Collection--those personnel retrieving data from medical record charts, transforming and coding data for subsequent processing, etc.
   - b) Clerical--secretarial personnel whose duties are typing, filing and generally supporting the project.

Each participant in the demonstration project was classified into one or more of the above three categories depending on type of work performed during the reporting periods. Where the choice between categories 2 and 3 was not clear, persons receiving $7 or more per hour were assigned to the Management/Technical category and those receiving less than $7 per hour to the Data Collection/Clerical category.

Six major functional categories were identified as spanning the entire work effort of the project. The six functions are:

1. Planning and Administration--includes activities relating to system-wide staffing and coordination, system design and approach and the administrative support activities that facilitate review system implementation.
2. Topic Selection--work related to identifying problems or topics for review and the selection of those topics likely to produce the greatest benefit.
3. Criteria Development--development of criteria related to the problem or topic under study which can be measured or compared by data being collected.
4. Data Collection (includes abstracting)--activity of collecting information from required data sources.
5. Review and Decision Making--professional (physician or other staff) examination and interpretation of processed information.
6. Feedback and Intervention--providing to those individual/facilities/groups results of analysis and/or review and decision making.

Assignment of personnel hours to specific functions was done by MFMC and reported on a monthly basis on the logs.

## PRESENTATION OF RESOURCE DATA

The summary of total personnel hours distributed by personnel category and tabulated by function is presented in Table 10. Percents of personnel resources for each of the functions is shown in Total and separately for each personnel category. Figure 3 is a graphic representation of this data. In this graph, the percent of total hours worked by members of each of the three personnel categories is represented horizontally and the percent of hours used for each functional category is represented vertically. Areas within the bars are proportional to the number of hours expended by any one personnel category for any one function.

## TABLE 10: DISTRIBUTION OF TOTAL PERSONNEL HOURS BY FUNCTION AND PERSONNEL CATEGORY

| | PERSONNEL CATEGORY | | | |
|---|---|---|---|---|
| FUNCTION | MD (%) | MGMT/ TECHNICAL (%) | DATA/ CLERICAL (%) | TOTAL (%) |
| Planning and Administration | 183 ( 33) | 742 ( 45) | 2,042 ( 30) | 2,967 ( 33) |
| Topic Selection | 97 ( 17) | 255 ( 15) | 354 ( 5) | 706 ( 8) |
| Criteria Development | 205 ( 37) | 76 ( 5) | 303 ( 5) | 584 ( 7) |
| Data Collection | 28 ( 5) | 346 ( 21) | 3,528 ( 52) | 3,902 ( 43) |
| Review and Decision Making | 4 ( 1) | 150 ( 9) | 124 ( 2) | 278 ( 3) |
| Feedback and Intervention | 45 ( 8) | 76 ( 5) | 437 ( 6) | 558 ( 6) |
| TOTAL | 562 (100) | 1,645 (100) | 6,788 (100) | 8,995 (100) |
| PERCENT | 6% | 18% | 76% | 100% |

FIGURE 3

DISTRIBUTION OF TOTAL PERSONNEL HOURS BY FUNCTION WITHIN PERSONNEL CATEGORY

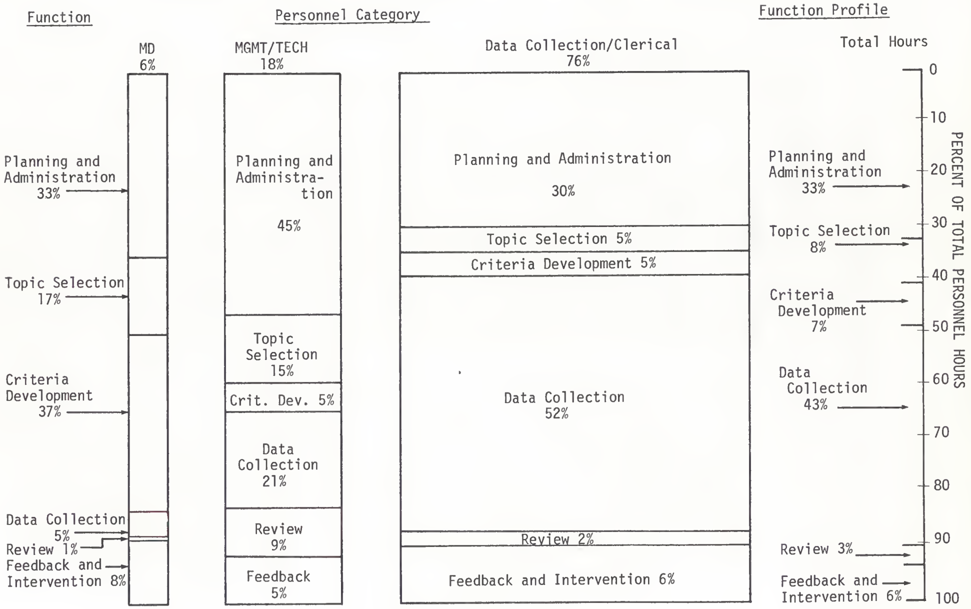


TABLE 11: DISTRIBUTION OF PERSONNEL HOURS FOR FUNCTIONS
BY CALENDAR QUARTER AND PERSONNEL CATEGORY

| | | PERSONNEL CATEGORY | | | |
|---|---|---|---|---|---|
| FUNCTION | CALENDAR QUARTER | MD (%) | MGMT/ TECHNICAL (%) | DATA/ CLERICAL (%) | TOTAL (%) |
| Planning and Administration | 10-12/76 | 68 ( 37) | 206 ( 28) | 152 ( 7) | 426 ( 14) |
| | 1-3 /77 | 25 ( 14) | 240 ( 32) | 528 ( 26) | 793 ( 27) |
| | 4-6 | 13 ( 7) | 118 ( 16) | 360 ( 17) | 491 ( 17) |
| | 7-9 | 23 ( 13) | 112 ( 15) | 282 ( 14) | 417 ( 14) |
| | 10-12 | 54 ( 29) | 30 ( 4) | 240 ( 12) | 324 ( 11) |
| | 1-3 /78 | | 36 ( 5) | 240 ( 12) | 276 ( 9) |
| | 4-6 | | | 240 ( 12) | 240 ( 8) |
| | TOTALS | 183 (100) | 742 (100) | 2,042 (100) | 2,967 (100) |
| | PERCENT | 6% | 25% | 69% | 100% |
| Topic Selection | 10-12/76 | 22 ( 23) | 36 ( 14) | | 58 ( 8) |
| | 1-3 /77 | 30 ( 31) | 48 ( 19) | 44 ( 12) | 122 ( 17) |
| | 4-6 | 1 ( 1) | | 10 ( 3) | 11 ( 2) |
| | 7-9 | 5 ( 5) | 20 ( 8) | | 25 ( 4) |
| | 10-12 | 37 ( 38) | 45 ( 18) | 142 ( 40) | 224 ( 32) |
| | 1-3 /78 | | 48 ( 19) | 158 ( 45) | 206 ( 29) |
| | 4-6 | 2 ( 2) | 58 ( 22) | | 60 ( 8) |
| | TOTAL | 97 (100) | 255 (100) | 354 (100) | 706 (100) |
| | PERCENT | 14% | 36% | 50% | 100% |
| Criteria Development | 10-12/76 | | | | |
| | 1-3 /77 | 63 ( 31) | 22 ( 29) | 66 ( 22) | 151 ( 26) |
| | 4-6 | 103 ( 50) | | 60 ( 20) | 163 ( 28) |
| | 7-9 | 39 ( 19) | 6 ( 8) | 10 ( 3) | 55 ( 9) |
| | 10-12 | | | | |
| | 1-3 /78 | | 32 ( 42) | 167 ( 55) | 199 ( 34) |
| | 4-6 | | 16 ( 21) | | 16 ( 3) |
| | TOTAL | 205 (100) | 76 (100) | 303 (100) | 584 (100) |
| | PERCENT | 35% | 13% | 52% | 100% |
| Data Collection | 10-12/76 | | | | |
| | 1-3 /77 | | 15 ( 4) | 28 ( 1) | 43 ( 1) |
| | 4-6 | 3 ( 11) | 147 ( 43) | 928 ( 26) | 1,078 ( 28) |
| | 7-9 | 25 ( 89) | 94 ( 27) | 708 ( 20) | 827 ( 21) |
| | 10-12 | | | | |
| | 1-3 /78 | | 40 ( 12) | 590 ( 17) | 630 ( 16) |
| | 4-6 | | 50 ( 14) | 1,274 ( 36) | 1,324 ( 34) |
| | TOTAL | 28 (100) | 346 (100) | 3,528 (100) | 3,902 (100) |
| | PERCENT | 1% | 9% | 90% | 100% |

TABLE 11 (CONT'D)

| FUNCTION | CALENDAR QUARTER | PERSONNEL CATEGORY | | | |
|---|---|---|---|---|---|
| | | MD (%) | MGMT/ TECHNICAL (%) | DATA/ CLERICAL (%) | TOTAL (%) |
| Review and Decision Making | 10-12/76 | | | | |
| | 1-3 /77 | | | | |
| | 4-6 | | | | |
| | 7-9 | | | | |
| | 10-12 | | 26 ( 17) | 18 ( 14) | 44 ( 16) |
| | 1-3 /78 | | | | |
| | 4-6 | 4 (100) | 124 ( 83) | 106 ( 86) | 234 ( 84) |
| | TOTAL | 4 (100) | 150 (100) | 124 (100) | 278 (100) |
| | PERCENT | 1% | 54% | 45% | 100% |
| Feedback and Intervention | 10-12/76 | | | | |
| | 1-3 /77 | | | | |
| | 4-6 | | | | |
| | 7-9 | | | | |
| | 10-12 | 32 ( 71) | 46 ( 60) | 368 ( 84) | 446 ( 80) |
| | 1-3 /78 | | 18 ( 24) | 5 ( 1) | 23 ( 4) |
| | 4-6 | 13 ( 29) | 12 ( 16) | 64 ( 15) | 89 ( 16) |
| | TOTAL | 45 (100) | 76 (100) | 437 (100) | 558 (100) |
| | PERCENT | 8% | 14% | 78% | 100% |

# APPENDIX A

## MULTNOMAH FOUNDATION FOR MEDICAL CARE CRITERIA

# APPENDIX A

## MULTNOMAH FOUNDATION FOR MEDICAL CARE

## CRITERIA

## Study Cycle I

### TOPICS

1. Hyperactivity
2. Well child care
3. Pediatric gastroenteritis
4. Gonorrhea culture
5. Pelvic exam
6. Hypertension

| CRITERIA | TOPIC | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| HISTORY & PHYSICAL | | | | | | |
| 1. One or more observation | x | | | | | |
| 2. Chronic early onset | x | | | | | |
| 3. Vomiting and/or diarrhea | | | x | | | |
| 4. Reference to dehydration | | | x | | | |
| 5. Serial weight | | | x | | | |
| 6. Leukorrhea | | | | x | | |
| 7. Condyloma | | | | x | | |
| 8. Trichomonas | | | | x | | |
| 9. Herpes progenitalia | | | | x | | |
| 10. Pelvic inflammatory disease | | | | x | | |
| 11. Positive contact (gonorrhea) | | | | x | | |
| 12. Use of contraceptives | | | | | x | |
| 13. Use of estrogen therapy | | | | | x | |
| 14. Presence of cervix | | | | | x | |
| 15. BP > 160/100 two occasions | | | | | | x |
| 16. Oral contraceptive use | | | | | | x |
| 17. History of use of sympathomimetics | | | | | | x |
| 18. History of use of cortisone | | | | | | x |
| DIAGNOSTIC PROCEDURES | | | | | | |
| 1. Psychological evaluation | x | | | | | |
| 2. I.Q. test | x | | | | | |
| 3. Height | | x | | | | |
| 4. Weight | | x | | | | |
| 5. Head circumference | | x | | | | |
| 6. History and physical | | x | | | | |
| 7. Hematocrit | | x | | | | |
| 8. Urinalysis | | x | | | | x |
| 9. Vision test | | x | | | | |
| 10. CBC | | | x | | | |
| 11. Gonorrhea culture | | | | x | | |
| 12. Pelvic and bimanual | | | | | x | |
| 13. Pap test | | | | | x | |
| 14. Digital rectal exam | | | | | x | |
| 15. Potassium and BUN | | | | | | x |
| 16. Uric acid | | | | | | x |
| 17. EKG | | | | | | x |
| 18. Chest x-ray | | | | | | x |

MFMC CRITERIA - CONTINUED

| CRITERIA | TOPICS | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| THERAPY | | | | | | |
| 1. Psychotherapy | x | | | | | |
| 2. Tutoring | x | | | | | |
| 3. Drugs - ritalin, dexedrine, cylert | x | | | | | |
| 4. DPT | | x | | | | |
| 5. OPV | | x | | | | |
| 6. PKU | | x | | | | |
| 7. Measles vaccine | | x | | | | |
| 8. Mumps vaccine | | x | | | | |
| 9. Rubella vaccine | | x | | | | |
| 10. PPD or tine | | x | | | | |
| 11. NPO | | | x | | | |
| 12. Clear liquids | | | x | | | |
| 13. Ampicillin, penicillin, spectenomycin | | | | x | | |
| 14. Tetracycline if allergic penicillin | | | | x | | |
| 15. Four phases drug therapy | | | | | | x |
| CONTRAINDICATED THERAPY | | | | | | |
| 1. Tranquilizers | x | | | | | |
| 2. Antidiarrheals | | | x | | | |
| 3. Antiemetics | | | x | | | |
| 4. Antibiotics | | | x | | | |
| OUTCOME | | | | | | |
| 1. Cessation of vomiting/diarrhea | | | x | | | |
| 2. Negative repeat culture 14 days | | | | x | | |
| 3. Lower BP to<140/90 in 3 months | | | | | | x |
| PATIENT DISPOSITION | | | | | | |
| 1. Follow-up visit | x | | | | | |
| 2. Referral | x | | | | | |
| 3. Problem | | x | | | | |

ADMINISTRATIVE DATA ELEMENTS -- ALL TOPICS

1. Physician identification
2. Physician specialty
3. Patient identification
4. Birthdate
5. Age
6. Sex
7. Payment code
8. Date of visit
9. Category of visit

## MULTNOMAH FOUNDATION FOR MEDICAL CARE

## CRITERIA

### Study Cycle II

TOPICS

1. Reactive hypoglycemia
2. Diabetes mellitus
3. Iron deficiency anemia
4. Use of coumadin
5. Lithium therapy for bipolar depression and mania
6. Psychiatric consultations
7. Chemistry screen results (see separate sheet for criteria)

| CRITERIA | TOPIC 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| HISTORY & PHYSICAL | | | | | | |
| 1. Perspiration, palpitation, weakness relieved by ingestion carbohydrates | x | | | | | |
| 2. Never present in fasting state | x | | | | | |
| 3. Previous thrombophlebitis, CVA, MI, pulmonary embolus or prosthetic heart valves | | | | x | | |
| 4. Cyclical mood swings | | | | | x | |
| 5. Periods of mania or hypomania | | | | | x | |
| 6. No major predisposing life events | | | | | x | |
| 7. Stated reason for consultation | | | | | | x |
| 8. Reason for consult responded to | | | | | | x |
| DIAGNOSTIC PROCEDURES | | | | | | |
| 1. Plasma glucose 50 or less | x | | | | | |
| 2. GTT 50 or less | x | | | | | |
| 3. Confirmed FBS 150 mgm or more | | x | | | | |
| 4. Two hour PPBS $>180$ mgm or 150 mgm at three hours | | x | | | | |
| 5. Hb $<11$ females, $<12$ males | | | x | | | |
| 6. Hct $<35$ females, $<40$ males | | | | | | |
| 7. CBC: MCV $<80$, or MCHC $<27$, or MCC $<30$ | | | x | | | |
| 8. Hypochromic blood smear | | | x | | | |
| 9. Prothrombin min. once per month | | | | x | | |
| 10. Normal physical exam | | | | | x | |
| 11. Blood lithium levels | | | | | x | |

MFMC CRITERIA (Cont'd)

| | TOPIC | | | | | |
|---|---|---|---|---|---|---|
| CRITERIA | 1 | 2 | 3 | 4 | 5 | 6 |
| THERAPY | | | | | | |
| 1. Diet prescribed | x | x | | | | |
| 2. Insulin | | x | | | | |
| 3. Patient ed: insulin, treatment of reactions, care during illness | | x | | | | |
| 4. Lithium with lithium blood levels | | | | | x | |
| CONTRAINDICATED THERAPY | | | | | | |
| 1. Adrenal cortical hormone | x | | | | | |
| 2. Carbohydrate diet $<$50 grm/day | x | | | | | |
| 3. Oral hypoglycemics | | x | | | | |
| 4. ASA, Atromid-S, Butazolidine | | | | x | | |
| 5. Evidence of hemorrhage or ecchymoses | | | | x | | |
| 6. MOA, antidepresssants | | | | | x | |
| 7. Diuretics | | | | | x | |
| SHORT TERM OUTCOME | | | | | | |
| 1. Controlled within 1 month of insulin initiation | | x | | | | |
| 2. No evidence of ecchymoses, hematuria, etc. | | | | x | | |
| 3. Lithium levels twice weekly until stable | | | | | x | |
| INVESTIGATIVE PROCEDURES | | | | | | |
| 1. Upper GI | | | x | | | |
| 2. Barium enema studies | | | x | | | |
| 3. Sigmoidoscopy | | | x | | | |
| LONG TERM MANAGEMENT/OUTCOME | | | | | | |
| 1. Office visit min. every 3 mo. | | x | | | | |
| 2. Documented control min. 2/3 FU visits | | x | | | | |
| 3. Documentation of height ($<$18 yr) and weight | | x | | | | |
| 4. Prevention of thrombo-emboli with coumadin | | | | x | | |
| 5. Lithium blood levels every 3 mo if stable | | | | | x | |
| 6. Prevention of recurring mania and depression | | | | | x | |

Study Topic: Chemistry Screen Results

Perceived Problem: Inadequate follow up for abnormal chem. screen results

| Test | Potassium below 3.5 or Above 5.5 MG | Bilirubin | Creatinine | Calcium |
|---|---|---|---|---|
| Follow up procedures required w/in one month (at least one) | - repeat test<br>- reference to drugs being used<br>- notation that test was abnormal or treatment | - repeat test<br>- GPT<br>- notation in progress notes of abnormality or treatment | - repeat test<br>- Creatinine clearance<br>- notation that test was abnormal or treatment | - repeat test<br>- notation that the test was abnormal or treatment |

| Uric Acid | SGOT | Protein above 8 | Random Blood Glucose over 150 MG |
|---|---|---|---|
| - repeat test<br>- notation that the test was abnormal or treatment | - repeat test<br>- SGPT<br>- LDH<br>- CPK<br>- note of abnormal results or treatment | - repeat test<br>- Electrophoresis<br>- notation of abnormal test results or treatment | - repeat blood sugar<br>- Glucose Tolerance test (GTT)<br>- notation that patient was fasting<br>- notation of abnormal test results or treatment |

# APPENDIX B

# OFFICE PROFILE

## APPENDIX B

## OFFICE PROFILE

Participant:

Other Physicians:

Date and Evaluators:

Contact Person:

In Office Tests:

X-Ray: PA view of chests filed in x-ray files with an abnormal or normal note in progress notes.

Lab: CBC, Sedrate, Urinalysis, Blood Sugar, Occult Blood, Vaginal and Urethral gram stains,
3 and 5 hr. glucose, Hemoglobin, Hematocrit, Uric Acid. These test results are recorded on a pink form in the record. This form is used for multiple tests and in that manner works somewhat like a flow sheet. (Attachment A)

EKG: An EKG and Bicycle EKG are done in the office and pasted into a special folder which is inserted into the office record. Normally, there is no notation in the record.

Tests Sent Out: Multi-chem screens, pap smears and other special tests are sent to Northwest Medical Laboratories. Results of all tests except multi-chems are stapled in the front of the record. The chem screen results are loosely filed in the record with those associated with the latest visits in the front.

Medical Records:

Filing: Records are filed by number. A rolodex containing the patient's name and record number is maintained. The rolodex is ordered alphabetically by name. The record number will be used for the patient's number on the abstract form.

Forms: Laboratory tests done in house are recorded on a pink form and laboratory tests sent out are recorded on the appropriate report form from Northwest Medical Laboratories.

Progress notes are handwritten on notebook paper with the date. If it is a physical exam, physical exam or periodical examination is typed onto the notebook paper at the beginning of that visit. Initially, notes are somewhat difficult to read, but appear to be concise enough to facilitate interpretation.

X-ray and EKG reports are recorded as indicated above. Telephone conversations are not regularly recorded, unless it relates to a drug refill. There is a green drug refill sheet where all refills are recorded.

Order of Notes: Physician # __ uses a traditional record format.

Notations: There appear to be no special notations of relevance.

Billing Records: Since physician # __ had already indicated that the gonorrhea criteria would not be used in his office, and there were methods for identifying patients for the pelvic exam and hypertension criteria, we did not review his billing records.

Appointment Registry: The appointment ledger indicated the name, the type of visit (the amount of time) and the problem if one. Physical exams can be easily identified from the appointment ledger.

General:

Clinic Hours: 9-5, Monday through Friday. ______________ usually takes Thursday afternoons off.

Working Space: Upstairs conference room.

Uniforms: Not normally worn.

Approach: The approach to locating charts will be as follows:

Hypertension: Physician #___ has kept logs of his hypertension patients and these patients will be reviewed. He now has about 45 patients on his log and we expect by the time we can schedule review for his office, there will be 50.

Pelvic: These will be located by pulling charts for females who made appointments for physicals as noted in the appointment ledger.

Ratification: Physician #___ indicated that he would ratify the hypertension criteria as it stands, he would ratify the pelvic criteria as it stands except for the requirement for a pap when the cervix has been removed for non-malignant reasons, and that he would not ratify the criteria concerned with gonorrhea. Consequently, we will not use the gonorrhea topic in his office.

Comments: Physician #___ indicated that he may be able to find someone in his office to do some reabstracting, perhaps a month from now after (______) is married and settles down. He objected to the rate differences for reimbursement between RNs, LPNs and medical office assistants, because he felt that well trained medical assistants could do an optimal job in the office and an RN was not necessary.

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# APPENDIX C

# VARIATIONS BY PHYSICIAN AND TOPIC

PHYSICIAN #2

PELVIC EXAM: Three charts were reviewed for 1976 had no rectal exam found by the abstractor the exams were done in all three cases. These charts were reabstracted by the Field Coordinator with the same results of no rectal exams being noted. After the follow-up review it was found that there was a physical exam done in 1975 with no rectal exam being noted. It is possible that the 1975 PE was abstracted and not the 1976.

Another case selected for review showed that while the abstractor did not find the Pelvic and Bimanual, Rectal exam and Pap, review of the charts showed all the procedures as being done.

Two other cased reviewed had variations of no pap smear being done, one case the exam was not done; this may have been due to the patient's age (80yrs). The second case reviewed showed that there was a notation on a flow sheet stating the exam was done by another Physician.

These problems encountered were due to abstracting errors, however, it should be noted that the charts in this office took a lot of concentration and searching to find the information needed.

PHYSICIAN #3

PELVIC EXAM: Variations in the criteria were not discussed at this time, a follow-up review will be at a later date.

PHYSICAIN #4

PELVIC EXAM: Variation in the criteria were reviewed in two cases, 1) pelvic exam and pap smear were not done because the PE was done for a specific diagnosis (Paresthesia). The physician did agree however that the patient should have a pap smear, 2) PE was done without a pap smear or pelvic exam, no reason could be found as to why the exam was deferred, however, it was done three months later (almost two years between exams).

PHYSICIAN #7

PELVIC EXAM: The three charts reviewed showed that while in the appointment book it may have stated the patient was coming in for a Physicail Exam, the patient was actually coming in for a problem. No pap smears were performed at that time.

PHYSICIAN #5
PEDIATRIC GASTROENTERITIS: In the review of charts with the physician, a problem was found with the coding used in the billing system. This type of coding caused patients to be grouped in this category which were not diagnosed as having Pediatric Gastroenteritis.

Also a problem was charting conventions not being known by the abstractor before abstracting began.

Three charts reviewed showed clear liquids noted as "taking fluids", or "$H_2O$", and NPO noted as "diet". Two other charts reviewed showed a notation of "standard diet" used also for NPO and clear liquids. These notes resulted in abstractor errors.

One chart reviewed indicated an abstracting error for finding no notation for "well hydrated child".

The CBC criteria was questioned by the physician as revelant criteria. Because of the overall low rate of compliance for the CBC criteria by all the physicians it should be noted as a questionable criterion.

PHYSICIAN #20-24
PEDIATRIC GASTROENTERITIS: Variations in the criteria, in reviewing the abstracts some of the patients in the study did not have a history of vomiting and/or diarrhea. This was found to be a problem with the physician's coding method. The physicians stated, "We use the diagnosis of gastroenteritis to include many cased which would be more properly just gastritis or enteritis, therby negating the chance of using the "NPO" designation. Many of the cases were seen after the acute episodes of vomiting. We were primarily dealing with diarrhea although the patient would be coded out as gastroenteritis".

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